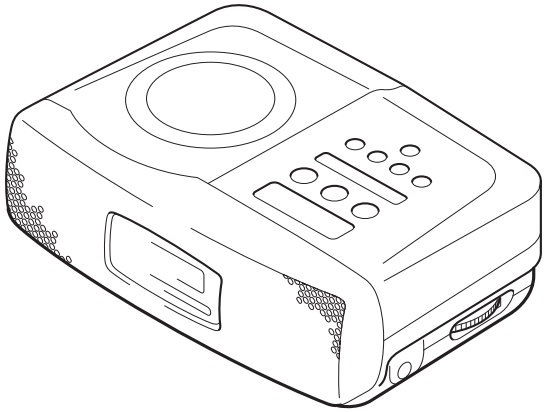
ICF-CD820/CD820L

SERVICE MANUAL

US Model
Canadian Model
E Model
Australian Model
ICF-CD820
AEP Model
ICF-CD820/CD820L
UK Model
ICF-CD820L



Model Name Using Similar Mechanism	CFD-550
Optical Device Name	KSM-213BAN
Optical Pick-UP Name	KSS-213B

SPECIFICATIONS

CD player section
System: Compact disc digital audio system
Laser diode properties: Material: GaAlAs
Wavelength: 780 nm
Emission duration: Continuous
Laser output: Less than 44.6 µW*
* This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.
Frequency response: 20-20,000 Hz $^{+1}_{-5}$dB
Wow and flutter: Below measurable limit

Radio section
Frequency range:

	Band	ICF-CD820	ICF-CD820L
Italy	FM	87.5-108.0 MHz	—
	AM	526.5-1,606.5 kHz	—
France	FM	—	87.5-108.0 MHz
	LW	—	153-255 kHz
Other countries	FM	87.5-108.0 MHz	87.5-108.0 MHz
	AM (MW)	530-1,605 kHz	530-1,605 kHz
	LW	—	153-255 kHz

General
Time display:
US, Canadian, UK,
Australian models: 12-hour system
Other countries: 24-hour system
Speaker: Fullrange: 7.7 cm (3 1/8 inches) 4 ohms
Output: ∩ jack (stereo minijack) (European models only)
Power outputs: 1.2 W + 1.2 W (at 10% harmonic distortion)
Power requirements:
US, Canadian models: 120 V AC, 60Hz
Other models: 220-230 V AC, 50Hz
Dimensions: Approx. 292 × 104 × 207 mm (w/h/d) (Approx. 11 1/2 × 4 1/8 × 8 1/4 inches) incl. projecting parts and controls
Mass:
ICF-CD820: Approx. 1.7 kg (3 lb 12 oz)
ICF-CD820L: Approx. 1.75 kg (3 lb 14 oz)

Design and specifications are subject to change without notice.

CD CLOCK RADIO

MICROFILM

SONY®

SECTION 1
SERVICING NOTES

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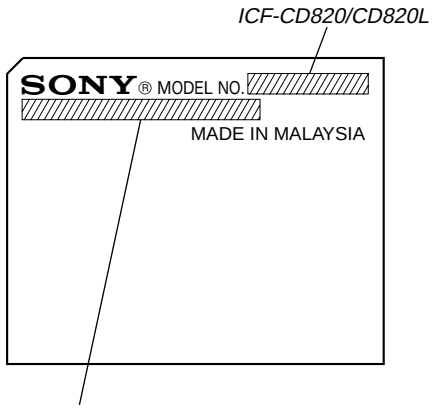
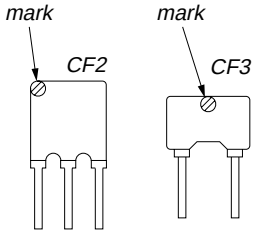
MODEL IDENTIFICATION



US, Canadian models: AC: 120 V ~ 60 Hz 15 W
Other models: AC: 220 – 230 V ~ 50 Hz 15 W

• HOW TO CHANGED THE CERAMIC FILTERS

This model is used two ceramic filters of CF2, CF3.
You must use same type of color marked ceramic filters in order to meet same specifications.
Therefore, the ceramic filter must change two pieces together since it's supply two pieces in one package as a spare parts.



mark	center frequency
red	10.70 MHz
blue	10.67 MHz
orange	10.73 MHz
black	10.64 MHz
white	10.76 MHz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.
Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

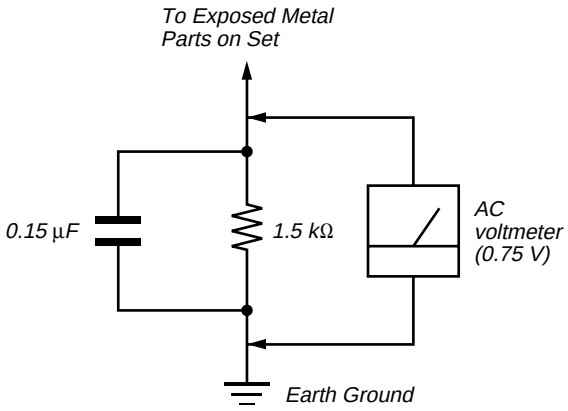


Fig. A. Using an AC voltmeter to check AC leakage.

Note on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

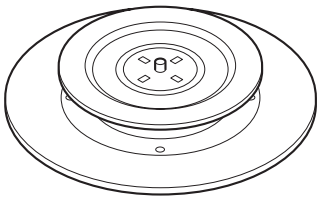
NOTES ON LASER DIODE EMISSION CHECK

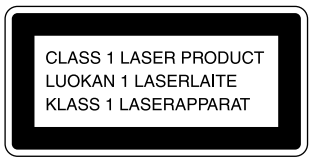
The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

CHUCK PLATE JIG ON REPAIRING

On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.

- Code number of Chuck Plate Jig: X-4918-255-1





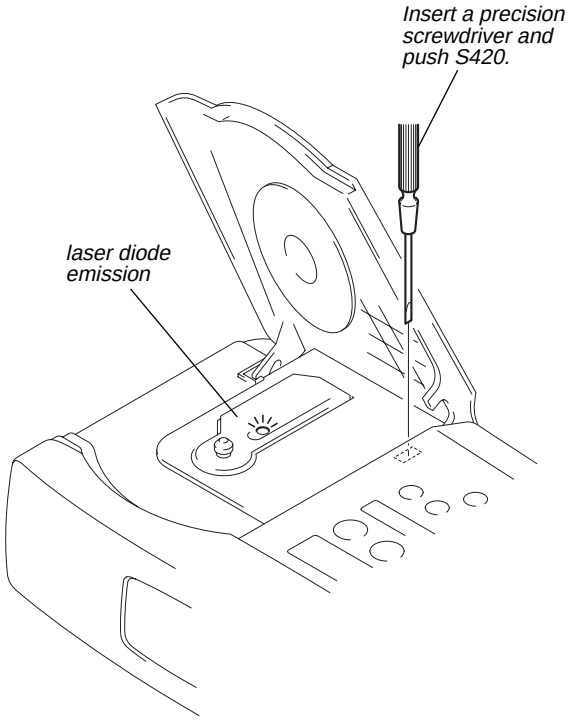
This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

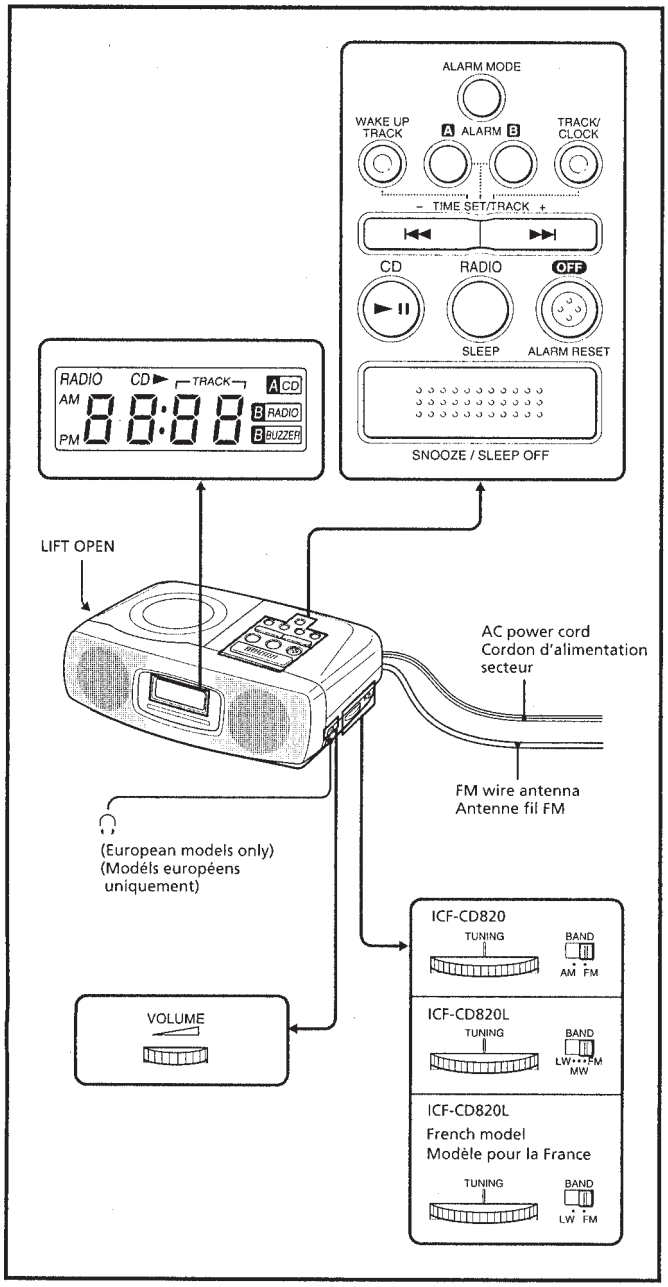
SECTION 2
GENERAL

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Open the CD lid.
2. Turn on S420 as following figure.
3. Confirm that the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down once for the focus search.



This section is extracted from instruction manual.



Before You Begin

Thank you for choosing the Sony CD clock radio! The CD clock radio will give you many hours of reliable service and listening pleasure.
Before operating the CD clock radio, please read these instructions thoroughly and retain them for future reference.

These instructions cover these models: ICF-CD280 and ICF-CD820L.
Their differences are shown below.

Model Number	ICF-CD820	ICF-CD820L
Band	FM/AM	FM/MW/LW FM/LW

Features

- You can wake up to CD, radio and buzzer with the snooze function.
- You can wake up to any track on CD.
- Dual alarm
- Three-inch disc can be played without an adaptor.
- Self power back-up: Even if the power supply is interrupted, the time setting and the memory will be backed up for 1 minute without batteries.

Precautions

- Operate the unit on the power sources specified in "Specifications".
- The nameplate indicating voltage, etc. is located at the bottom.
- Disconnect the cord by grasping the plug. Never pull it by the cord.
- Do not leave the unit in a location near a heat source such as a radiator or airduct, or in a place subject to direct sunlight, excessive dust, mechanical vibration, or shock.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on a surface (a rug, a blanket, etc.) or near materials (a curtain) which might block the ventilation holes.
- Should any liquid or solid object fall into the unit, unplug the unit and have it checked by a qualified personnel before operating it further.
- When the casing becomes soiled, clean it with a soft cloth dampened with a mild detergent solution. Never use abrasive cleansers or chemical solvents, as they may mark the casing.

If you have any question, please consult your nearest Sony dealer.

Setting the Clock

Set the time when the CD or radio is turned off.

1 Plug in the unit.
The display will flash "AM 12:00" or "0:00".

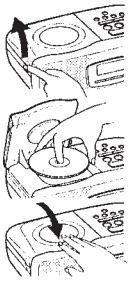
2 While holding down **TRACK/CLOCK**, press either **TIME SET/TRACK +** or **–** until the correct time appears in the display.
When you release **TRACK/CLOCK**, the clock begins to operate and ":" flashes.

- The clock system varies depending on the model you own.
  12-hour system: "AM 12:00"= midnight
  24-hour system: "0:00"= midnight
- To set the current time rapidly, keep pressing the + or – button while holding down **TRACK/CLOCK**.
- To set the current time from zero seconds, at step 2, release **TRACK/CLOCK** with the time signal.

Playing a Disc

An 8 cm (3-inch) CD can be played without an adaptor.

1 Lift **LIFT OPEN** to open the CD compartment lid and place a disc.



2 Press **CD ▶II** and the display lights "01". The current number (01 to 99) appears in the display window. After 10 seconds, the indication becomes the current time, but the "CD ▶ " indication remains.

3 Adjust **VOLUME**.

Locating a Particular Portion

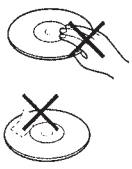
Locating a particular selection (AMS*)
To locate the beginning of the current selection, press I◀◀.
To locate the next selection, press ▶▶I.
Locating a particular point in a selection (SEARCH)
To go back at high speed, keep I◀◀ pressed.
To go ahead at high speed, keep ▶▶I pressed.

* AMS is the abbreviation of Automatic Music Sensor.

- If you press I◀◀ repeatedly, the player locates the previous selections. If you press ▶▶I repeatedly, the player locates the next selections and stops at the last selection.
- To stop play, press **OFF/ALARM RESET**.
- To pause, press **CD ▶II** and the "CD ▶ " indication flashes. To resume play, press **CD ▶II** again.
- To change the clock mode to track mode, press **TRACK/CLOCK**.
  Press **TRACK/CLOCK** again, and the current time appears.
- To eject a disc, lift **LIFT OPEN**.
- For private listening, connect the stereo headphones to the Ω jack. (European models only)
- To handle compact discs

This way

Not this way



Notes

- Do not open the CD compartment lid while playing, otherwise, the disc will be damaged. Be sure to stop the disc first.
- When you press **CD ▶II**, if there is no disc in the CD compartment, the "00" indication flashes for 10 seconds and the unit will be turned off.
- If the A CD alarm is activated while listening to the CD, the track changes to that preset by pressing **WAKE UP TRACK**.

Setting the Alarm

You can set the CD, radio and buzzer alarms at the preset time. Before setting the alarm, be sure to set the clock. (See "Setting the Clock".)

Setting the Alarm Time

To set the A CD alarm

1 While holding down **ALARM A**, press either **TIME SET/TRACK +** or **–** until the desired time appears in the display window.
The " A CD " indication flashes and ":" lights.

2 Release **ALARM A**. The alarm time is set and the indication becomes the current time.

3 While holding down **WAKE UP TRACK**, set the desired track by pressing I◀◀ or ▶▶I beside **TIME SET/TRACK**.

4 Release **WAKE UP TRACK**. The track is preset and the indication becomes the current time.

Note

When the CD player is preset to start with track 5, it will always start with track 5 even though you change the CD, unless you change **WAKE UP TRACK**.

To set the B RADIO / B BUZZER alarm

1 While holding down **ALARM B**, press either **TIME SET/TRACK +** or **–** until the desired time appears in the display window. The " B RADIO " or " B BUZZER " indication flashes and ":" lights.

2 Release **ALARM B**. The alarm time is set and the indication becomes the current time.

Setting the Alarm Mode

Before setting the alarm mode, be sure to set the alarm time. (See "Setting the Alarm Time".)

1 Press **ALARM MODE** until the alarm you want appears in the display window.
Each time you press **ALARM MODE**, the alarm indication changes as follows.

No alarm indication → A CD → B RADIO → B BUZZER → A CD and B BUZZER → A CD and B RADIO → (back to A CD)

- To stop the alarm, press **OFF/ALARM RESET**. The alarm will sound at the same time the next day.
- To cancel the alarm, while holding down **ALARM MODE**, press **OFF/ALARM RESET**.
- To check the alarm time you set, press **ALARM A** or **ALARM B**.

Notes

- The alarm does not function, unless you set the clock and A CD / B RADIO / B BUZZER alarm.
- If you set the CD alarm and radio or buzzer alarm at the same time, the CD alarm sounds.
- When you set the CD alarm, if there is no disc in the CD player, the buzzer will sound at the time you set.
- The selected alarm is activated at the time you set, and automatically turns off after 60 minutes.
- When the CD alarm comes on, the " A CD " indication flashes.
  If you want to stop flashing, press **CD ▶II**. The CD player will stop playing at the last track.
- When the radio alarm is activated, the " B RADIO " indication flashes. If you want to keep on listening to radio and stop flashing, press **RADIO/SLEEP**. The " B BUZZER " indication remains.
- The buzzer sound level is fixed, and independent of **VOLUME**.

To Doze for a Few More Minutes

1 Press **SNOOZE/SLEEP OFF**. The CD, radio or buzzer will shut off but will be activated automatically after about 8 minutes. You can repeat this process as many times as necessary.

- While **SNOOZE/SLEEP OFF** function is operating, the alarm indication flashes.

To Use Both Sleep Timer and Alarm

You can fall asleep to the radio and you will be awakened by the CD, radio or buzzer alarm at the preset time.

1 Set the alarm. (See "Setting the Alarm".)

2 Set the sleep timer. (See "Setting the Sleep Timer".)

Operating the Radio

1 Press **RADIO/SLEEP** to turn on the radio.
The "RADIO" indication will appear and the "On" indication will appear in the display. After 10 seconds, the indication becomes the current time but the "RADIO" indication remains.

2 Adjust **VOLUME**.

3 Select the **BAND**.

4 Tune in a station using the **TUNING** dial.

- To turn off the radio, press **OFF/ALARM RESET**.
- To improve radio reception
  FM: Extend the FM wire antenna to improve FM reception.
  AM (MW)/LW: Rotate the unit horizontally for optimum reception. A ferrite bar antenna is built into the unit.

Setting the Sleep Timer

You can enjoy falling asleep to the radio using the built-in sleep timer that turns off the radio automatically after a preset duration.

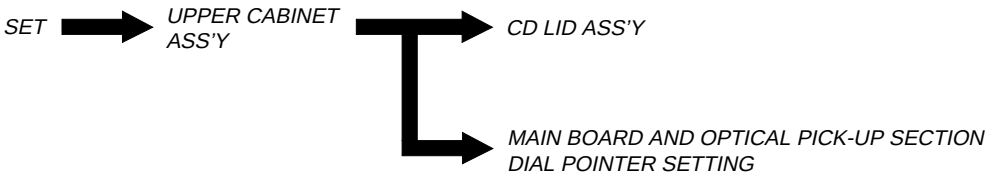
1 Press **RADIO/SLEEP** repeatedly.
The radio turns on and the "On" indication will appear initially in the display. The radio will turn off automatically after the selected preset duration has elapsed.
Each time you press **RADIO/SLEEP**, the duration changes as follows.

Radio on → 90 min → 60 min → 30 min → 15 min → Radio off (Sleep timer off) → (back to Radio on)

- To turn off the radio before the preset duration has elapsed, press **SNOOZE/SLEEP OFF**.

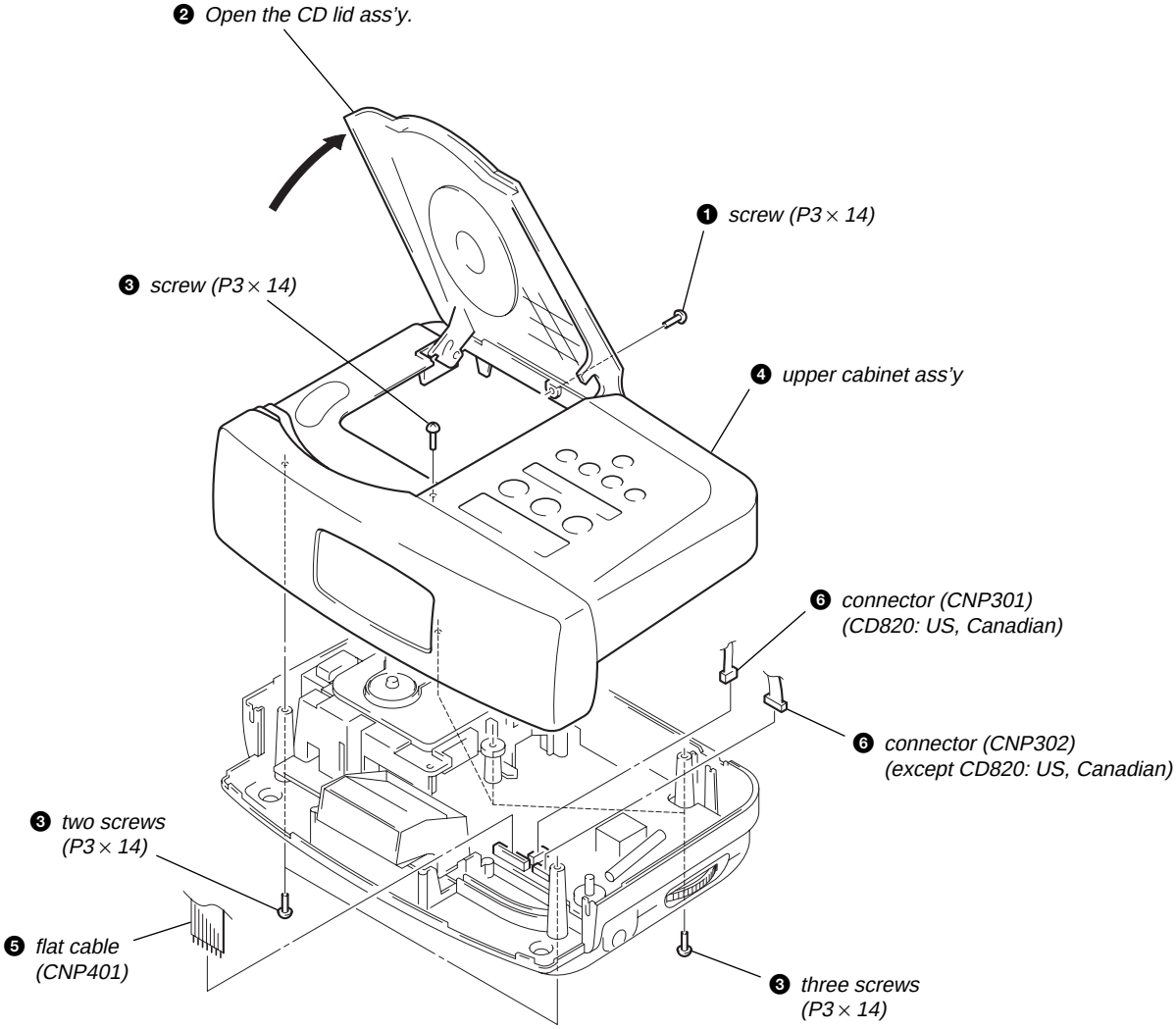
SECTION 3
DISASSEMBLY

• This set can be disassembled in the order shown below.

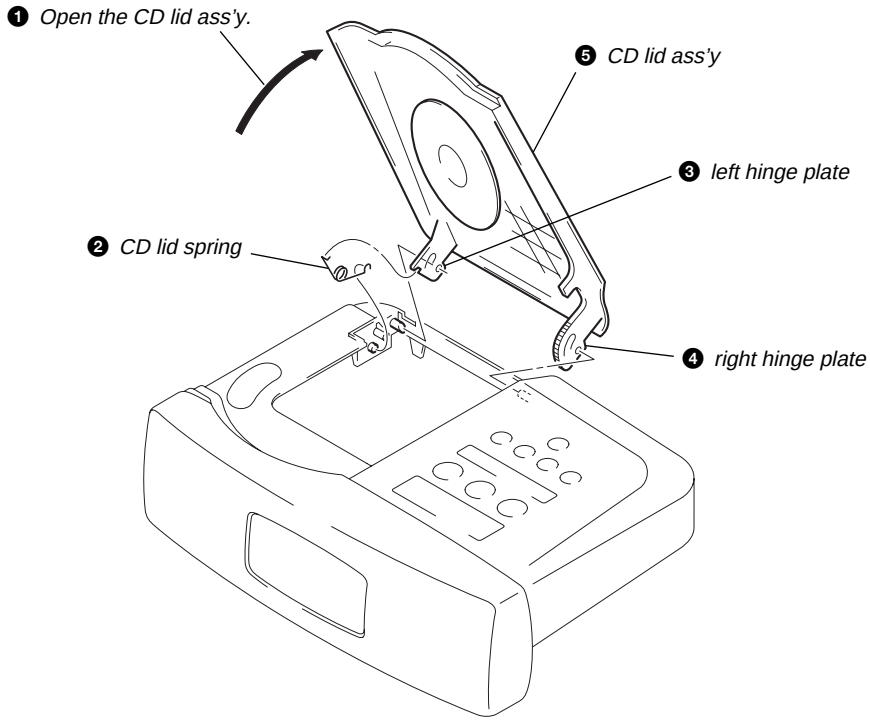


Note: Follow the disassembly procedure in the numerical order given.

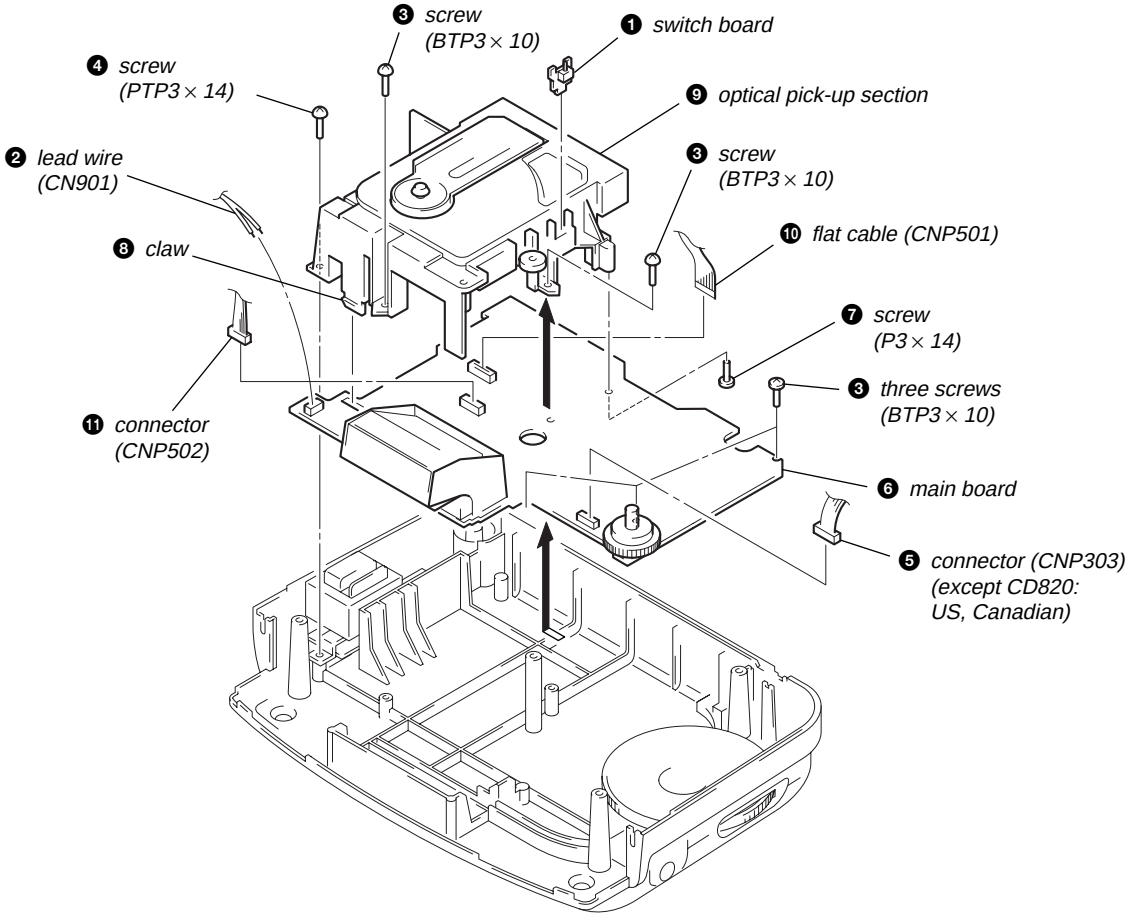
UPPER CABINET ASS'Y


❷ Open the CD lid ass'y.
❶ screw (P3 × 14)
❸ screw (P3 × 14)
❹ upper cabinet ass'y
❻ connector (CNP301) (CD820: US, Canadian)
❻ connector (CNP302) (except CD820: US, Canadian)
❸ two screws (P3 × 14)
❺ flat cable (CNP401)
❸ three screws (P3 × 14)

CD LID ASS'Y

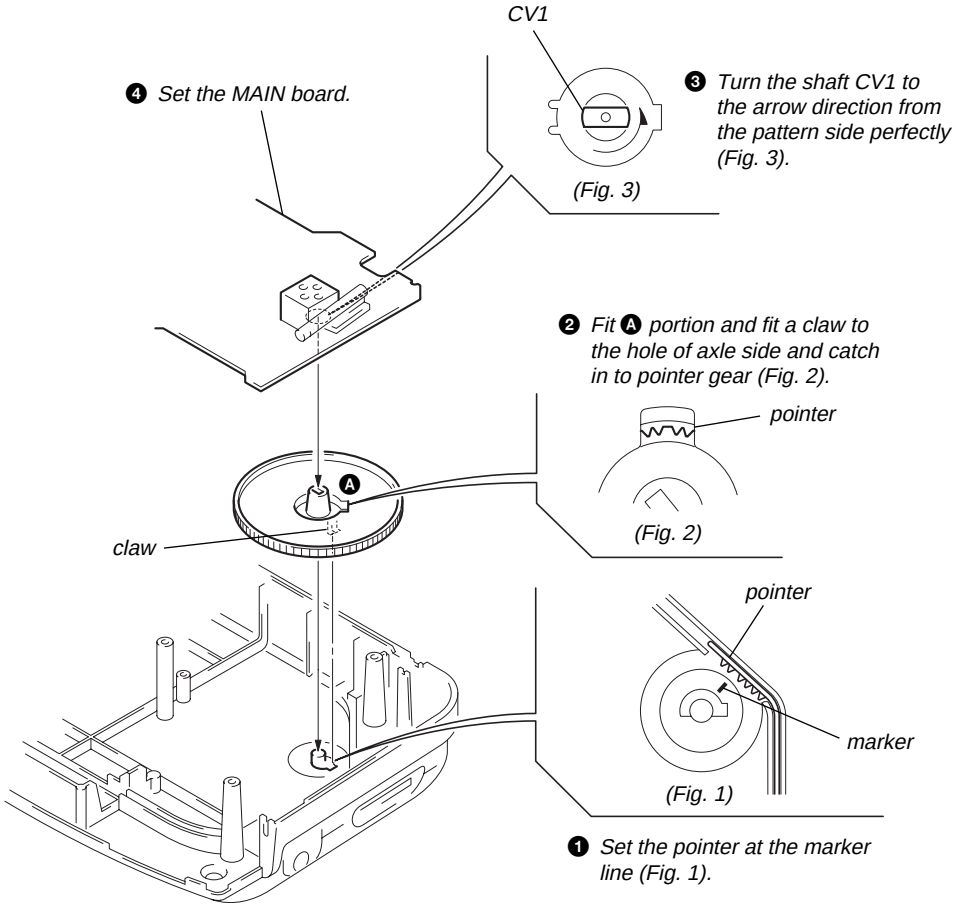


MAIN BOARD AND OPTICAL PICK-UP SECTION


❸ screw (BTP3 × 10)
❶ switch board
❹ screw (PTP3 × 14)
❾ optical pick-up section
❷ lead wire (CN901)
❸ screw (BTP3 × 10)
❽ claw
❿ flat cable (CNP501)
❼ screw (P3 × 14)
❸ three screws (BTP3 × 10)
⓫ connector (CNP502)
❻ main board
❺ connector (CNP303) (except CD820: US, Canadian)

DIAL POINTER SETTING

Note: Follow the assembly procedure in the numerical order given.


CV1
❹ Set the MAIN board.
❸ Turn the shaft CV1 to the arrow direction from the pattern side perfectly (Fig. 3).
(Fig. 3)
❷ Fit Ⓐ portion and fit a claw to the hole of axle side and catch in to pointer gear (Fig. 2).
pointer
Ⓐ
claw
(Fig. 2)
pointer
marker
(Fig. 1)
❶ Set the pointer at the marker line (Fig. 1).

SECTION 4
ELECTRICAL ADJUSTMENTS

PRECAUTION

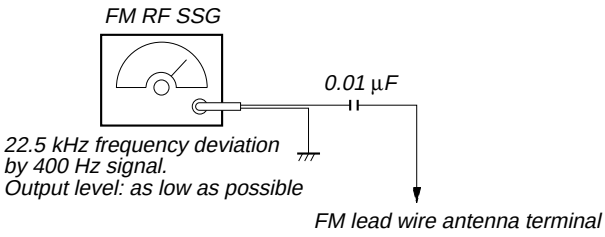
- Adjustment should be performed in the order given.

TUNER SECTION | 0 dB=1 µV

[FM]

Setting:

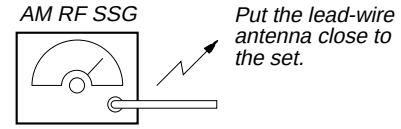
Function switch: RADIO
BAND switch : FM

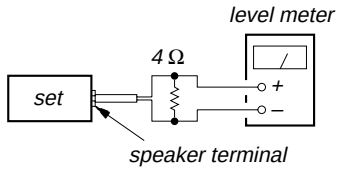

FM RF SSG
0.01 µF
22.5 kHz frequency deviation
by 400 Hz signal.
Output level: as low as possible
FM lead wire antenna terminal

[AM (MW) /LW]

Setting:

Function switch: RADIO
BAND switch : MW/LW





- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter	
L3	87.5 MHz
CT2	108.0 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter	
L2	87.5 MHz
CT1	108.0 MHz

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter	
T1	455 kHz

AM (MW) FREQUENCY COVERAGE ADJUSTMENT (Except CD820L: FR)	
Adjust for a maximum reading on level meter	
L4	530 kHz [526.5 kHz]
CT4	1,605 kHz [1,606.5 kHz]

AM (MW) TRACKING ADJUSTMENT (Except CD820L: FR)	
Adjust for a maximum reading on level meter	
L1 (CD820) L1-1 (CD820L: AEP, UK)	600 kHz [598.5 kHz]
CT3	1,400 kHz [1,399.5 kHz]

LW FREQUENCY COVERAGE ADJUSTMENT (CD820L: FR)	
Adjust for a maximum reading on level meter	
L4	160 kHz
CT4	240 kHz

LW TRACKING ADJUSTMENT (CD820L: FR)	
Adjust for a maximum reading on level meter	
L1-1	160 kHz
CT3	240 kHz

LW FREQUENCY COVERAGE ADJUSTMENT (CD820L: AEP, UK)	
Adjust for a maximum reading on level meter	
CT6	145 kHz

LW TRACKING ADJUSTMENT (CD820L:AEP, UK)	
Adjust for a maximum reading on level meter	
L1-2	160 kHz
CT5	240 kHz

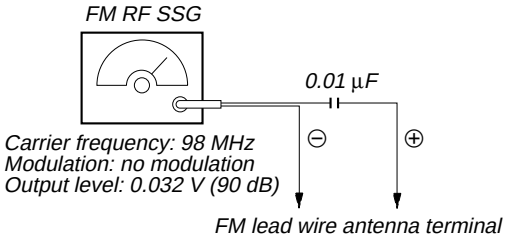
NOTE:

[ ] : Italian model

- Abbreviation
  FR : French model

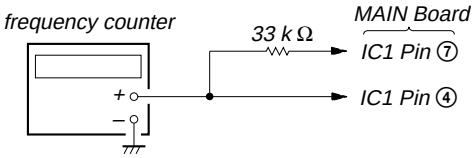
FM STEREO Adjustment

Procedure:

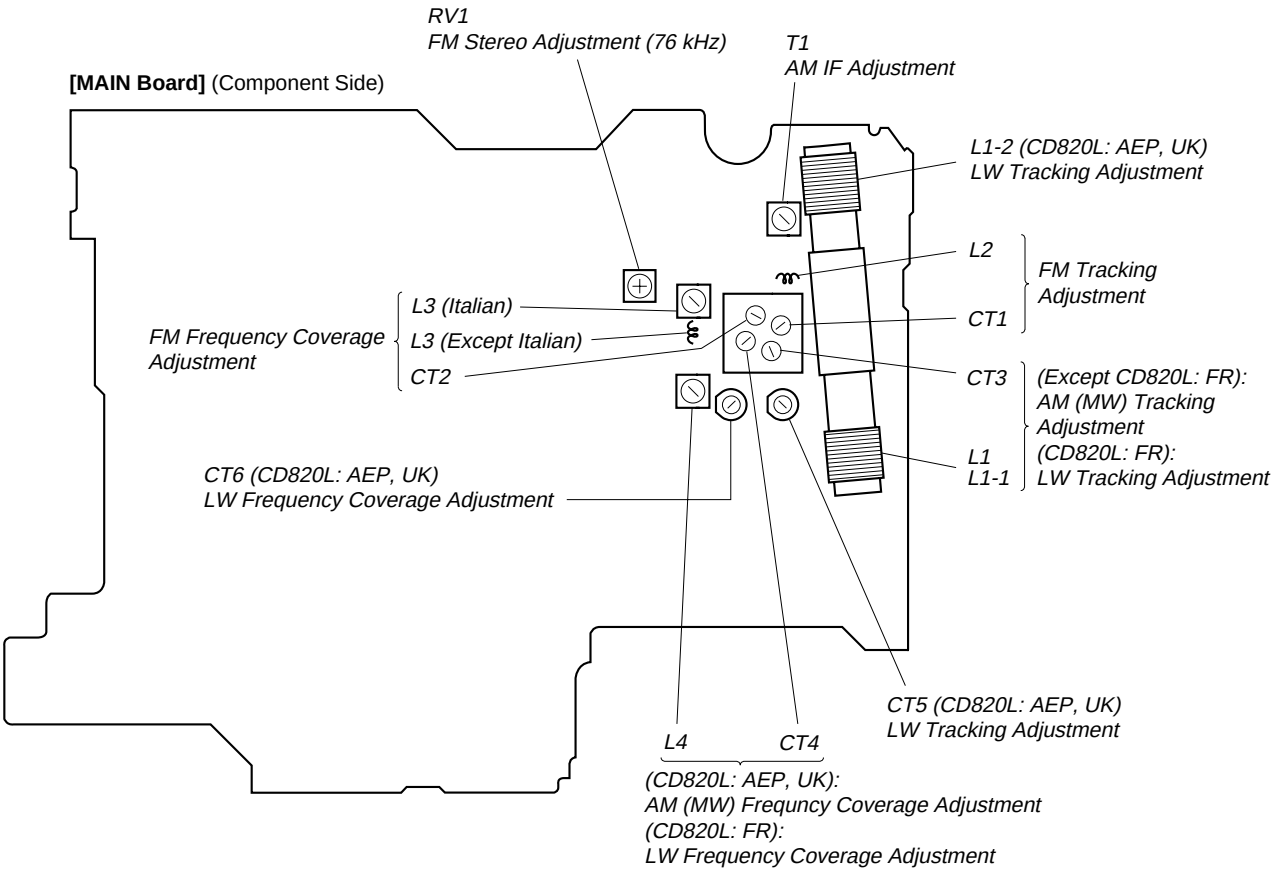


1. Connect the frequency counter to ④ and ⑦ pins of IC1 as shown the figure right.
2. Tune the set to 98 MHz.
3. Adjust RV1 for 76 kHz ± 500 Hz reading on frequency counter.

Connection:



Adjustment Location:



CD SECTION

Note:
Tracking Balance Adjustment and Tracking Gain Adjustment are done automatically in this set.

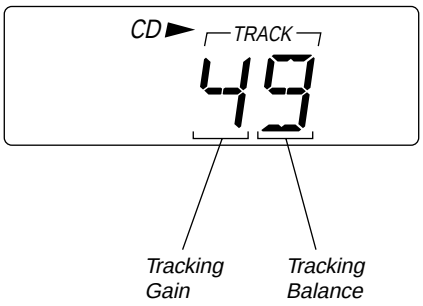
TEST MODE

1. Set the open switch (S420) to the CLOSE position.
2. Under POWER OFF condition (when the clock appear in the display), short the TEST terminal.

Note: If the power is supplied to the microprocessor once, it is backed up for 3 minutes, and therefore the TEST mode will not be activated within 3 minutes even if the power is turned on again. In this case, short instantaneously the test point RST and GND.

3. Press the CD ▶II key, and the focus search is repeated.
   At this time, check that the optical pickup objective lens moves smoothly without a sticking or noise.
4. Load the test disc (YEDS-18,Part No. 3-702-101-01), and perform automatic adjustment after the focus search succeded.
5. After automatic adjustment is finished, move the sled motor to the center. At this time, keep pressing the ▶▶I and I◀◀ keys to confirm that optical pickup moves smoothly via most inside track → most outside track → most inside track without a sticking or noise.
6. Confirm the traverse waveform.
7. Press the WAKE UP TRACK key.
8. The tracking servo and the sled servo are turned on, the mute is cancelled, the test pattern display on, LCD disappears, and normal CD mode becomes active.
9. Adjust the RF and jitter waveforms.

LCD Display

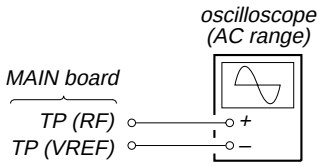


Connecting points: MAIN Board (See page 13)

Focus Bias Adjustment

This adjustment is to be done when the optical block is replaced.

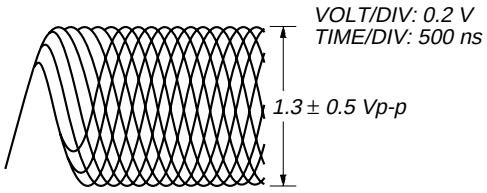
Connection:



Adjustment Procedure:

1. Connect the oscilloscope to test point TP (VREF) and TP (RF) on MAIN board.
2. Insert the disc (YEDS-18, Part No.3-702-101-01) and press CD ▶II key to play.
3. Move the optical pick-up to the music area on the disc to enable easy visibility of the eye pattern by ▶▶I and I◀◀ button pressing.
4. Adjust RV501 so that the oscilloscope waveform is as shown in the figure below (eye pattern).
   A god eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

• RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

Adjustment Location: MAIN Board (See page 13)

Focus Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.
However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.
Focus gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.
However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

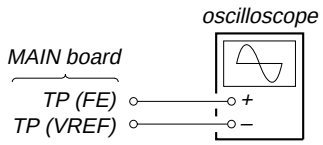
Symptoms \ Gain	Focus
• The time until music starts becomes longer for STOP → PLAY or automatic selection. (⏮, ⏭ buttons pressed.) (Normally takes about 2 seconds.)	low
• Music does not start and disc continues to rotate for STOP → PLAY or automatic selection. (⏮, ⏭ buttons pressed.)	–
• Sound is interrupted during PLAY. Or time counter display stops progressing.	–
• More noise during 2-axis device operation	high

The following is a simple adjustment method.

– Primary Adjustment –

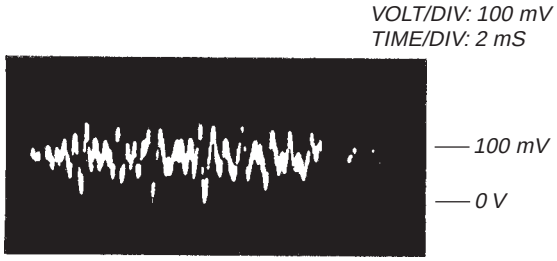
Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the primary adjustment are only a little different, return the controls to the original position.

Connection:

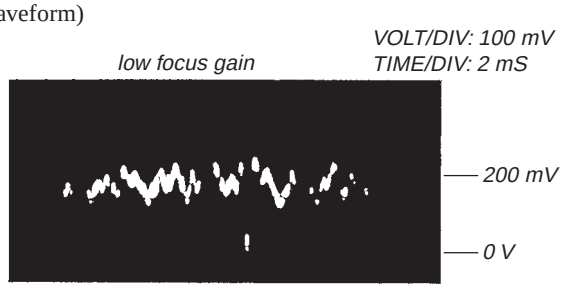


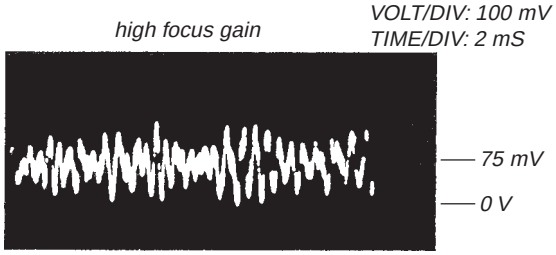
Procedure:

1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2-axis device.)
2. Insert the disc (YEDS-18) and press ⏯ button.
3. Connect the oscilloscope TP (FE) and TP (VREF) on MAIN board.
4. Adjustment RV502 on MAIN board so that the waveform is as shown in the figure below.



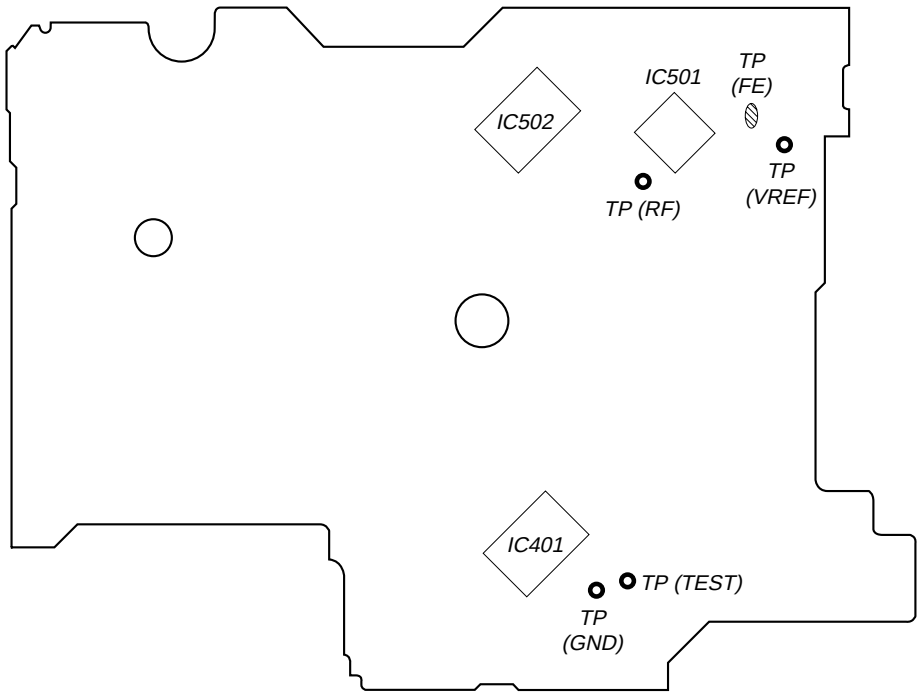
- Incorrect Examples (DC level changes more than on adjusted waveform)



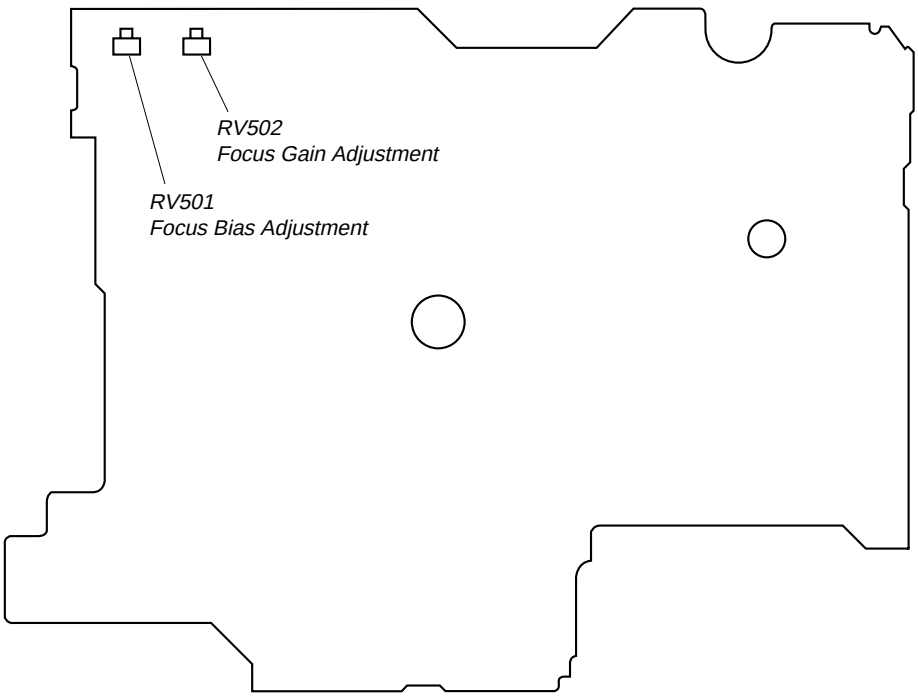


Adjustment Location:

[MAIN Board] (Conductor Side)

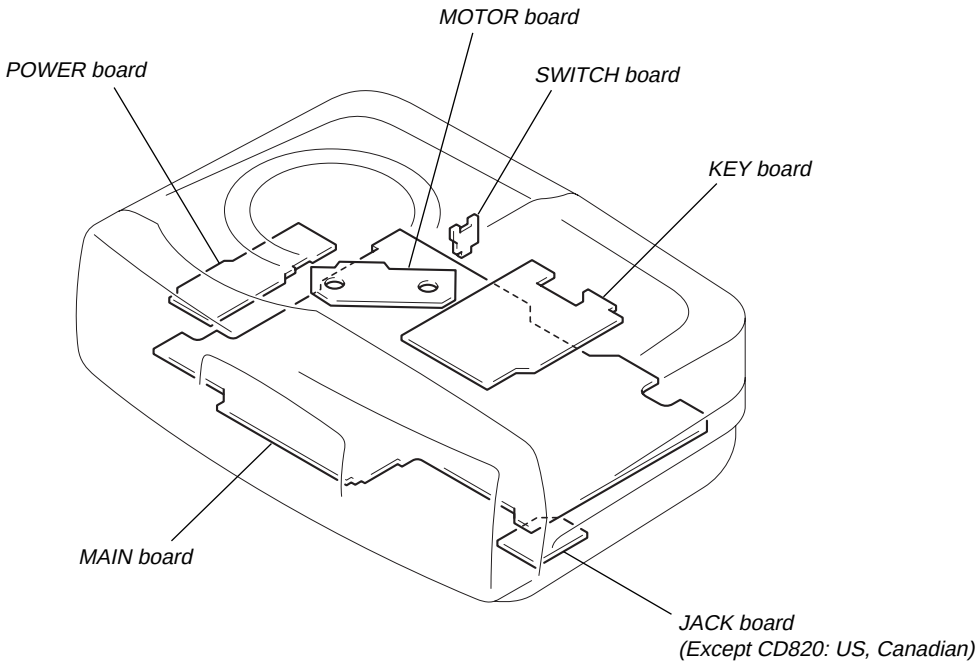


[MAIN Board] (Component Side)



SECTION 5
DIAGRAMS

- **Circuit Boards Location**



5-1. PTINTED WIRING BOARDS

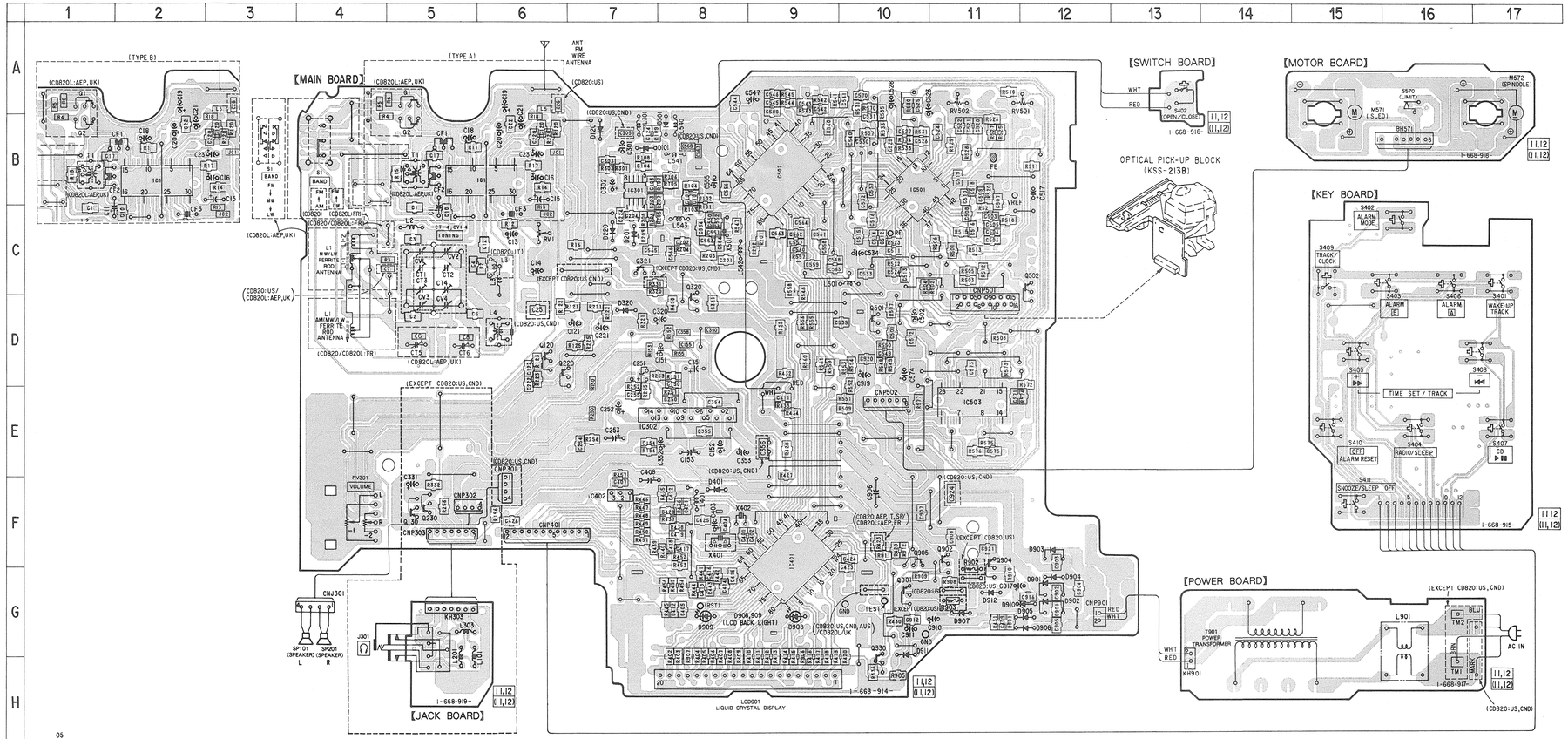
• See page 14 for Circuit Boards Location.

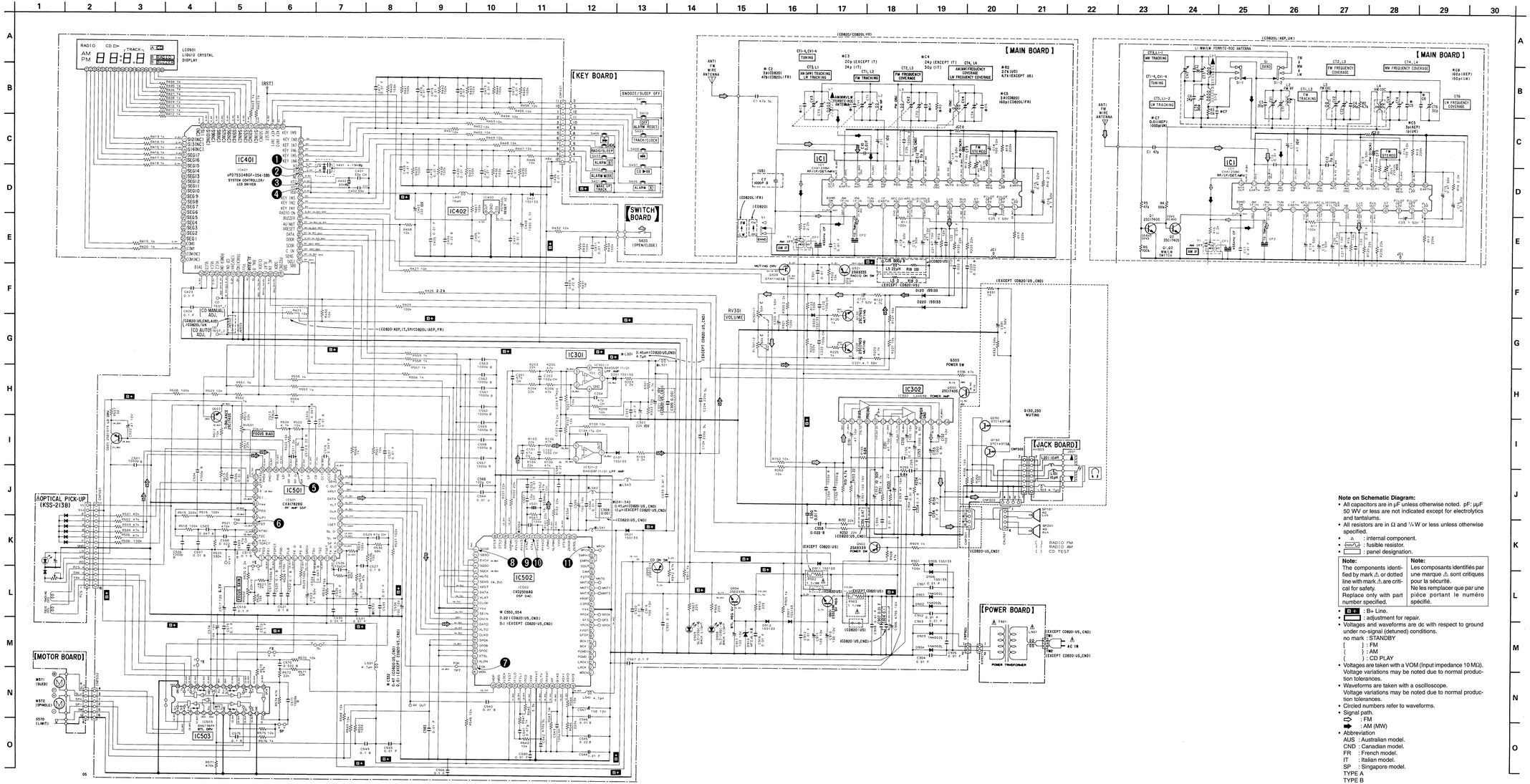
• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D101	B-7	IC302	E-7
D120	B-7	IC401	F-9
D201	C-7	IC402	F-7
D220	C-7	IC501	B-10
D320	D-7	IC502	B-9
D401	F-8	IC503	E-11
D501	B-8		
D901	G-12	○ Q1	A-5
D902	G-12	○ Q2	B-5
D903	F-12	Q120	D-6
D904	G-12	● Q130	F-5
D905	G-12	Q220	D-6
D906	G-12	● Q230	F-5
D907	G-11	Q320	D-8
D908	G-9	Q321	C-7
D909	G-8	Q330	H-10
D910	G-12	Q501	D-10
D911	H-10	Q502	C-12
D912	G-11	Q901	G-10
		Q902	F-11
IC1	B-6	Q904	F-10
IC301	B-7	Q905	F-10

Note:
○ (CD820L: AEP, UK)
● (EXCEPT CD820: US, CND)

Note on Printed Wiring Boards:
- ⟷ : parts extracted from the component side.
- ⊣⊢ : indicates side identified with part number.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.
- Abbreviation
  AUS : Australian model.
  CND : Canadian model.
  FR : French model.
  IT : Italian model.
  SP : Singapore model.
  TYPE A
  TYPE B





Note on Schematic Diagram:

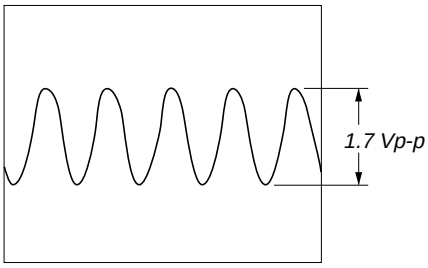
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ⚠ : fusible resistor.
- ▭ : panel designation.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STANDBY
  [ ] : FM
  ( ) : AM
  < > : CD PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : AM (MW)
- Abbreviation
  AUS : Australian model.
  CND : Canadian model.
  FR : French model.
  IT : Italian model.
  SP : Singapore model.
  TYPE A
  TYPE B

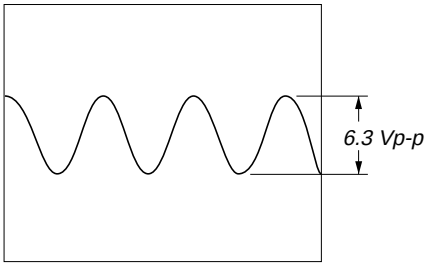
• Waveforms

❶ IC401 ⑲ (X2)
500 mV/DIV, 100 ns/DIV



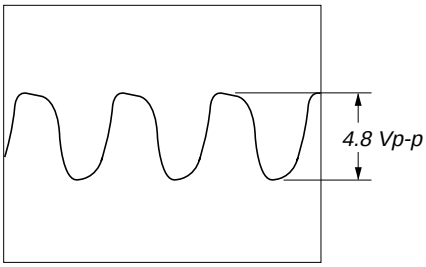
4.19 MHz

❷ IC401 ⑱ (X1)
2 V/DIV, 100 ns/DIV



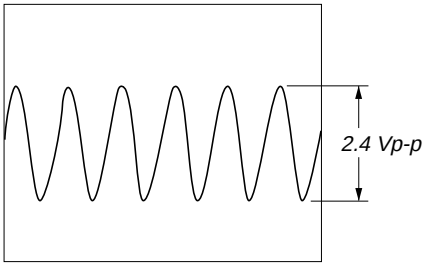
4.19 MHz

❸ IC401 ⑯ (XT2)
2 V/DIV, 20 µs/DIV



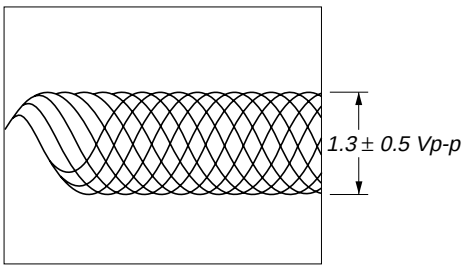
32 kHz

❹ IC401 ⑮ (XT1)
1 V/DIV, 20 µs/DIV

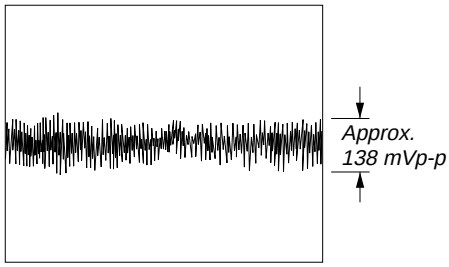


32 kHz

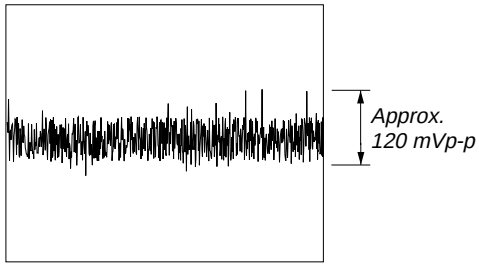
❺ IC501 ㉛ (RFO) (PLAY MODE)
200 mV/DIV, 500 ns/DIV



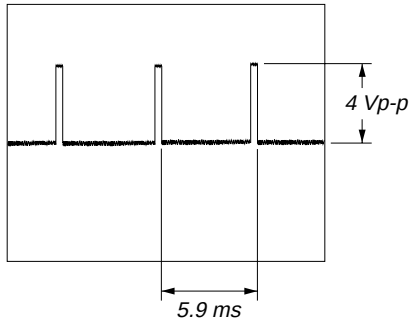
❻ IC501 ㊹ (TET) (PLAY MODE)
500 mV/DIV, 1 ms/DIV



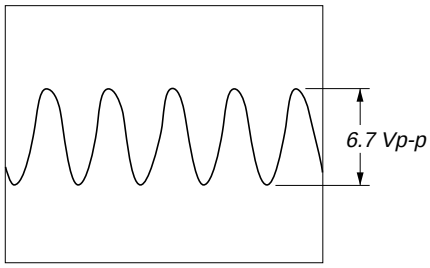
❼ IC502 ㉓ (FOK) (PLAY MODE)
50 mV/DIV, 2 ms/DIV



❽ IC502 ① (SCOR) (PLAY MODE)
5 V/DIV, 5 ms/DIV

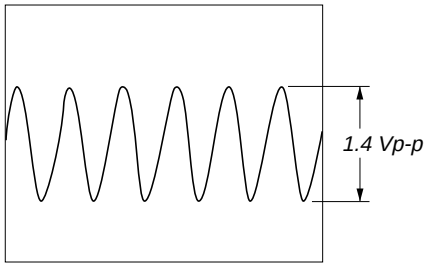


❾ IC502 ㉔ (XTAO) (PLAY MODE)
2 V/DIV, 50 ns/DIV



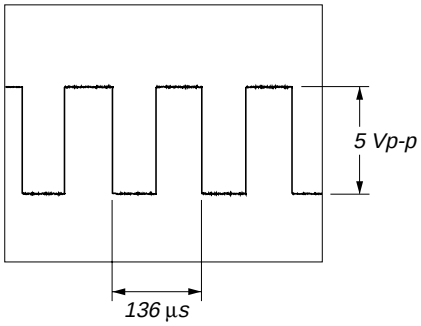
16.93 MHz

❿ IC502 ㉓ (XTAI) (PLAY MODE)
500 mV/DIV, 50 ns/DIV



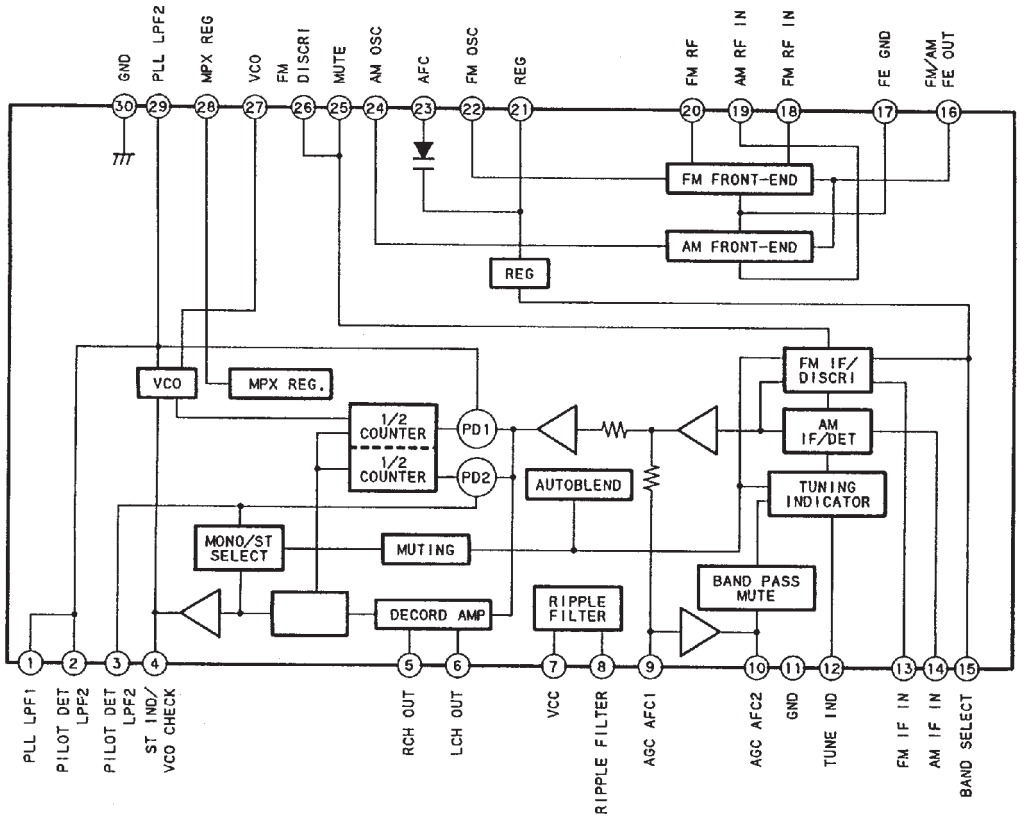
16.93 MHz

⓫ IC502 ㊹ (WFCK) (PLAY MODE)
2 V/DIV, 100 µs/DIV

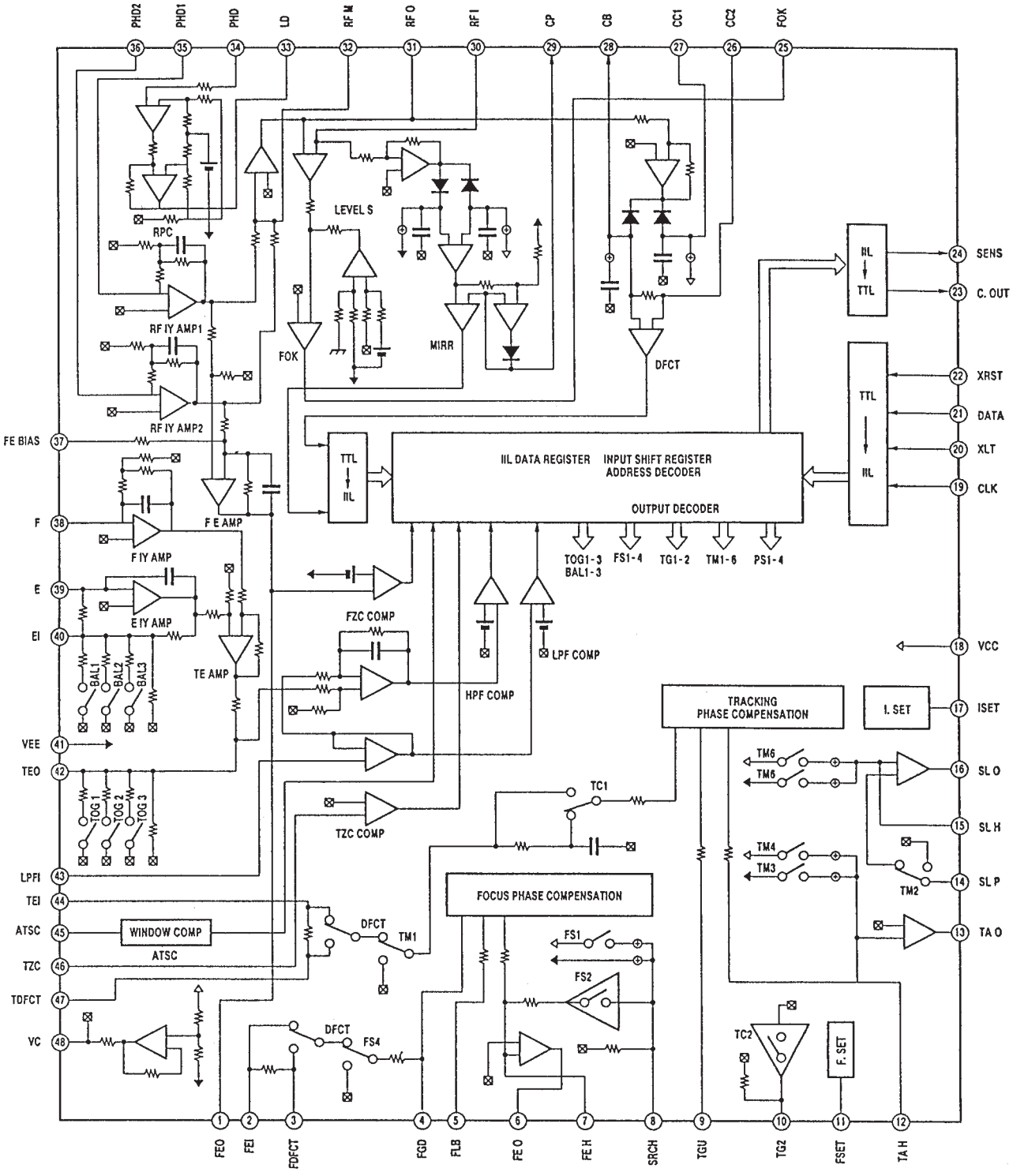


• IC Block Diagrams
– MAIN Board –

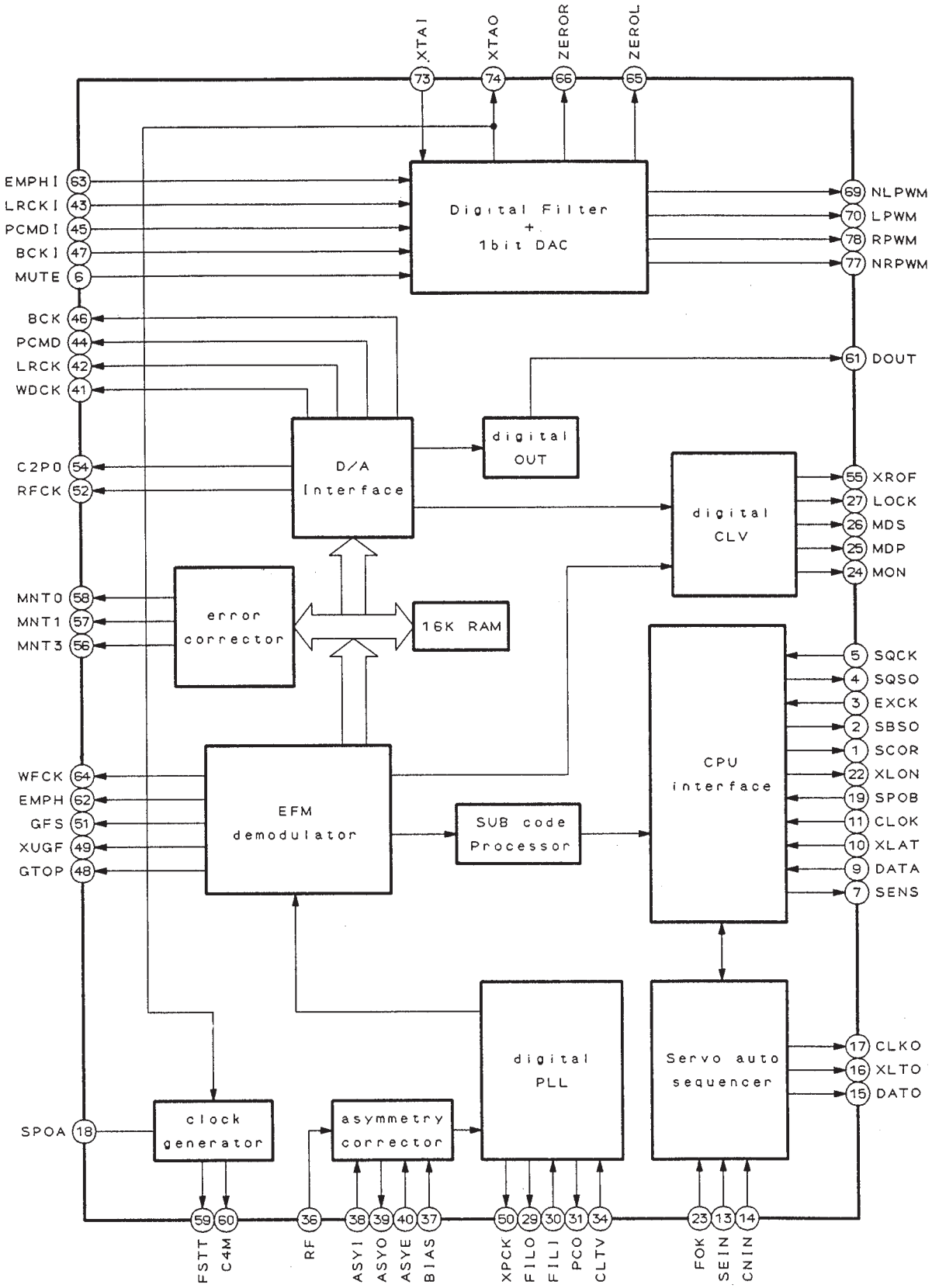
IC1 CXA1238M-T6



IC501 CXA1782BQ



IC502 CXD2508AQ



5-3. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC401 μPD75304BGF-054-3B9 (SYSTEM CONTROLLER/LCD DRIVER)

Pin No.	Pin Name	I/O	Function
1 to 3	S12 to S14	O	Segment drive signal output to the liquid crystal display (LCD901)
4 to 6	SEG17 to SEG15	O	Segment drive signal output to the liquid crystal display (LCD901)
7 to 20	SEG14 to SEG1	O	Segment drive signal output terminal Not used (open)
21, 22	COM0, COM1	O	Common drive signal output to the liquid crystal display (LCD901)
23, 24	COM2, COM3	O	Common drive signal output terminal Not used (open)
25	BIAS	O	Liquid crystal display drive bias control output terminal
26 to 28	VLC0 to VLC2	—	Terminal for doubler circuit capacitor connection to develop liquid crystal display drive voltage
29	POWER ON	I/O	Power on/off control signal output and CD test mode 1 setting terminal At initial mode: valid/invalid selection of the CD test mode 1 (CD test mode 1 when "L" input) At normal mode: main power on/off control signal output (power on when "L" output)
30	CD ON	I/O	Power on/off control signal output and CD test mode 2 setting terminal At initial mode: valid/invalid selection of the CD test mode 2 (CD test mode 2 when "L" input) At normal mode: CD power on/off control signal output (power on when "L" output)
31	$\overline{12H}$/24H	I	Setting terminal for the time display (12/24-hour system) "L": 12H, "H": 24H ICF-CD820; US, Canadian, Australian models and ICF-CD820L; UK model: fixed at "L", ICF-CD820; AEP, Italian, Singapore models and ICF-CD820L; AEP, French models: fixed at "H"
32	TRACKING	I	Setting terminal for the auto tracking adjustment function "L": auto tracking (fixed at "L")
33	VSS	—	Ground terminal
34	ALRAM	—	Not used (open)
35	BAL B	O	Tracking balance adjustment control signal output to the CXA1782BQ (IC501)
36	CLOCK	O	Serial data transfer clock signal output to the CXD2508AQ (IC502)
37	XLAT	O	Serial data latch pulse signal output to the CXD2508AQ (IC502)
38	AC IN	I	AC IN detection signal input terminal (for AC IN check) "H": AC IN OK
39	SQCK	O	Clock signal output for subcode Q data reading to the CXD2508AQ (IC502)
40	P02	O	Not used (open)
41	SQSI	I	Subcode Q data input from the CXD2508AQ (IC502)
42	SENS	I	Internal status detection signal input from the CXD2508AQ (IC502)
43	C IN	I	Track jump count signal input from the CXD2508AQ (IC502)
44	SCOR	I	Subcode sync (S0+S1) detection signal input from the CXD2508AQ (IC502)
45	DOOR	I	CD lid open/close detect switch (S420) input terminal "L": open, "H": close
46	DATA	O	Serial data output to the CXD2508AQ (IC502)
47	$\overline{\text{XRESET}}$	O	Reset signal output to the CXA1782BQ (IC501) and CXD2508AQ (IC502) "L": reset
48	AU MUT	O	Audio line muting on/off control signal output terminal "L": muting on
49	BUZZER	O	Beep sound output terminal
50	RADIO ON	O	Radio system power on/off control signal output terminal "L": radio on
51	KEY IN1	I	Key input terminal WAKE UP TRACK key input (S401)
52	KEY IN2	I	Key input terminal ALARM MODE key input (S402)
53	KEY IN3	I	Key input terminal ALARM **B** key input (S403)
54	VDD	—	Power supply terminal (+5V)
55	XT1	I	Sub system clock input terminal (32 kHz)
56	XT2	O	Sub system clock output terminal (32 kHz)
57	NC	—	Connected to power supply (+5V)
58	X1	I	Main system clock input terminal (4.19 MHz)
59	X2	O	Main system clock output terminal (4.19 MHz)

Pin No.	Pin Name	I/O	Function
60	KEY IN4	I	Key input terminal RADIO SLEEP key input (S404)
61	KEY IN5	I	Key input terminal TIME SET/TRACK + ▶▶I key input (S405)
62	KEY IN6	I	Key input terminal ALARM A key input (S406)
63	KEY IN7	I	Key input terminal CD ▶ II key input (S407)
64	KEY IN8	I	Key input terminal TIME SET/TRACK – I◀◀ key input (S408)
65	KEY IN9	I	Key input terminal TRACK/CLOCK key input (S409)
66	KEY IN10	I	Key input terminal OFF ALARM RESET key input (S410)
67	KEY IN11	I	Key input terminal SNOOZE/SLEEP OFF key input (S411)
68	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC402) "L": reset "L" is input for several 100 msec after power on, then it changes to "H"
69	S0	O	Segment drive signal output terminal Not used (open)
70 to 80	S1 to S11	O	Segment drive signal output to the liquid crystal display (LCD901)

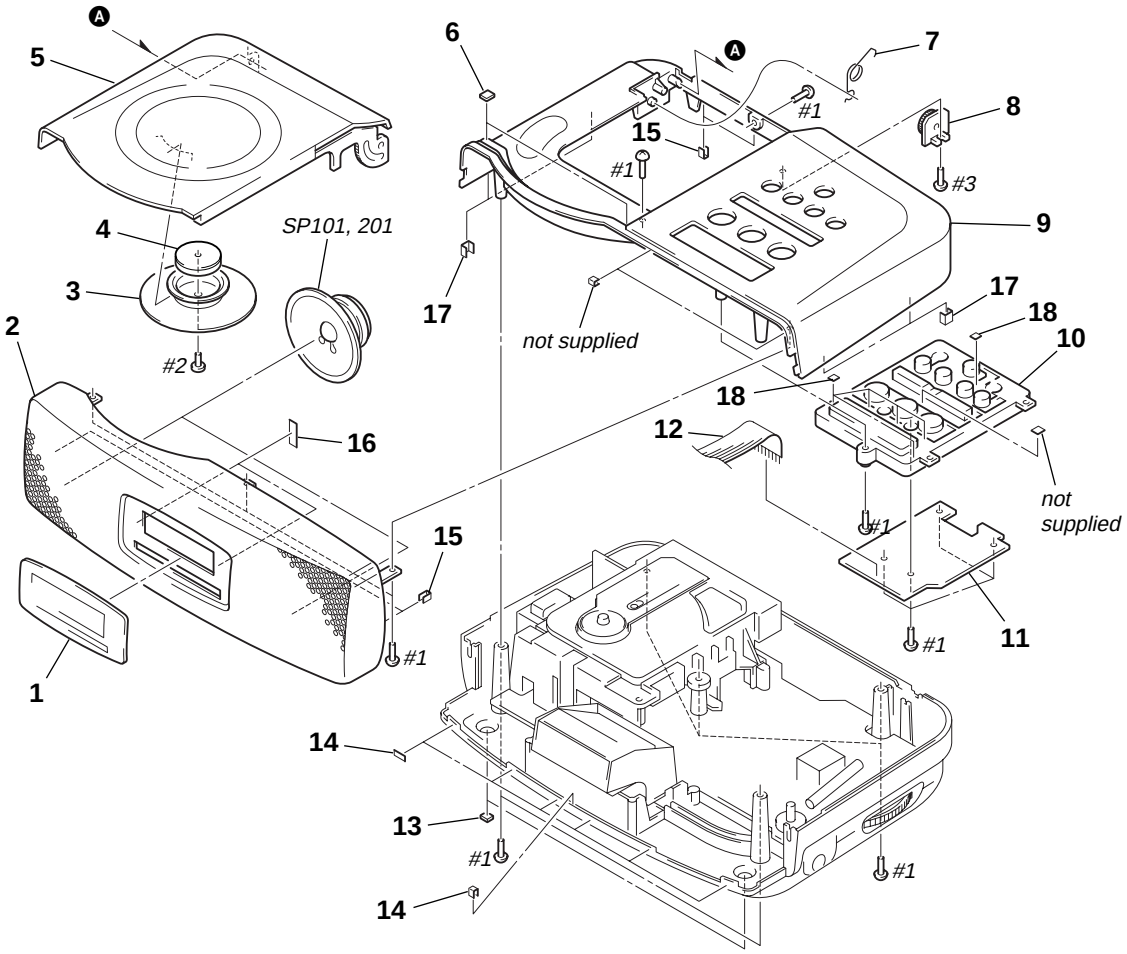
SECTION 6
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  AUS : Australian IT : Italian TYPE A
  FR : French SP : Singapore TYPE B
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

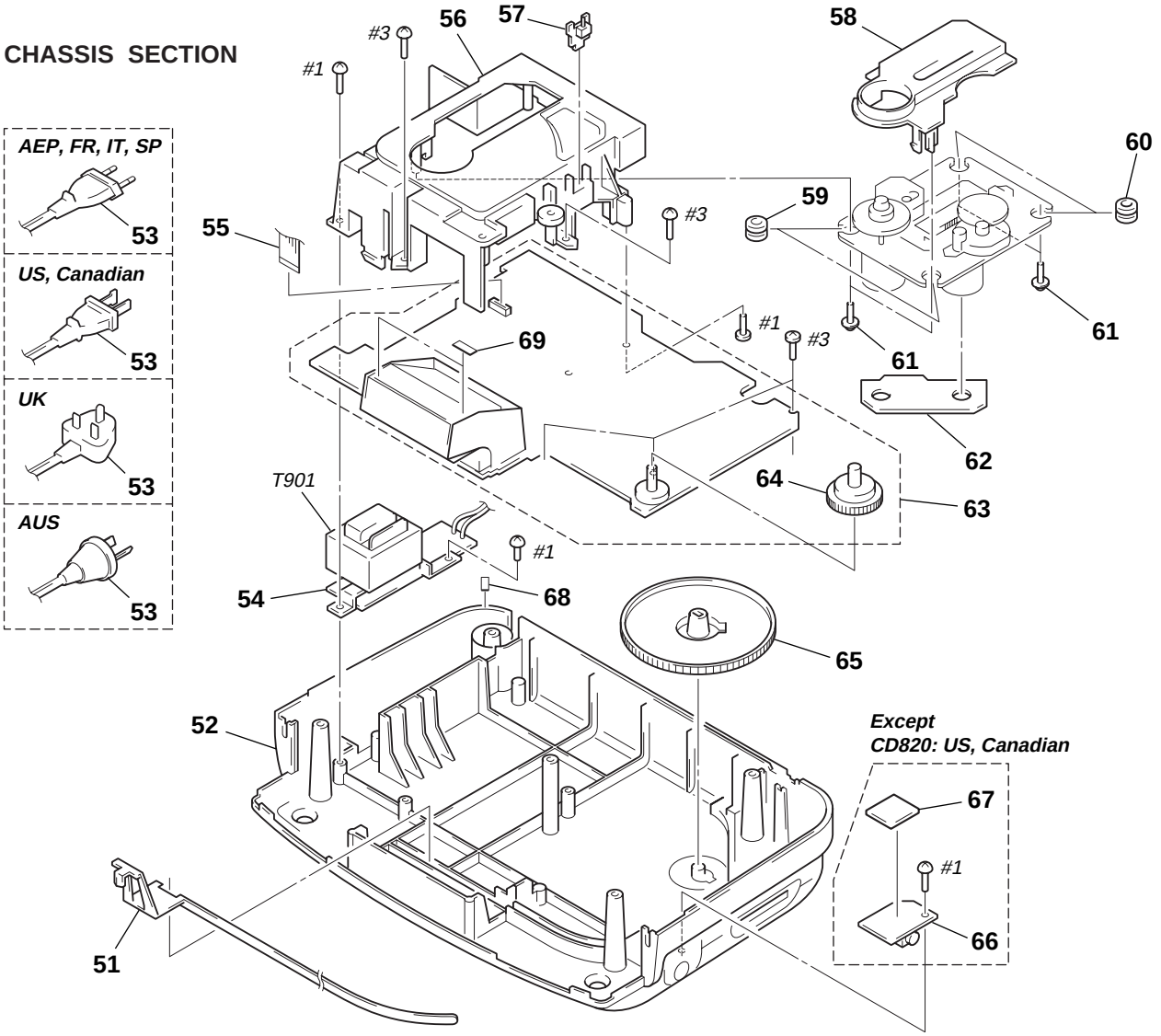
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	3-021-532-01	WINDOW (LCD) (CD820: US, Canadian, AEP, SP, AUS)	
1	3-021-532-11	WINDOW (LCD) (CD820: IT)	
1	3-021-532-21	WINDOW (LCD) (CD820L: FR)	
1	3-021-532-31	WINDOW (LCD) (CD820L: AEP, UK)	
2	3-021-528-01	PANEL, FRONT (BLACK)	
2	3-021-528-11	PANEL, FRONT (WHITE) (CD820: US, Canadian)	
2	3-021-528-31	PANEL, FRONT (SILVER) (CD820: IT/CD820L: UK)	
3	3-910-112-01	PLATE, CHUCKING	
4	1-452-732-11	MAGNET	
5	3-021-529-01	LID, CD (BLACK)	
5	3-021-529-11	LID, CD (WHITE) (CD820: US, Canadian)	
5	3-021-529-31	LID, CD (SILVER) (CD820: IT/CD820L: UK)	
6	3-026-560-01	CUSHION (D)	
7	3-021-821-01	SPRING (CD LID)	
8	3-351-377-11	DAMPER	
9	3-021-526-01	CABINET (UPPER) (BLACK)	
9	3-021-526-11	CABINET (UPPER) (WHITE) (CD820: US, Canadian)	
9	3-021-526-21	CABINET (UPPER) (SILVER) (CD820: IT/CD820L: UK)	
10	3-021-531-01	BUTTON (BLACK)	
10	3-021-531-11	BUTTON (WHITE) (CD820: US, Canadian)	
* 11	1-668-915-11	KEY BOARD (TYPE A)	
* 11	1-668-915-12	KEY BOARD (TYPE B)	
12	1-775-826-11	CORD, CONNECTION	
13	3-368-852-01	FOOT	
* 14	3-026-564-01	SPACER (A)	
* 15	3-026-565-01	SPACER (B)	
* 16	3-026-566-01	SPACER (C)	
17	2-532-810-00	COSHION 15X5X0.3	
18	3-831-441-99	SHEET (1)	
SP101	1-504-460-11	SPEAKER (7.7CM) (L-CH)	
SP201	1-504-460-11	SPEAKER (7.7CM) (R-CH)	

(2) CHASSIS SECTION

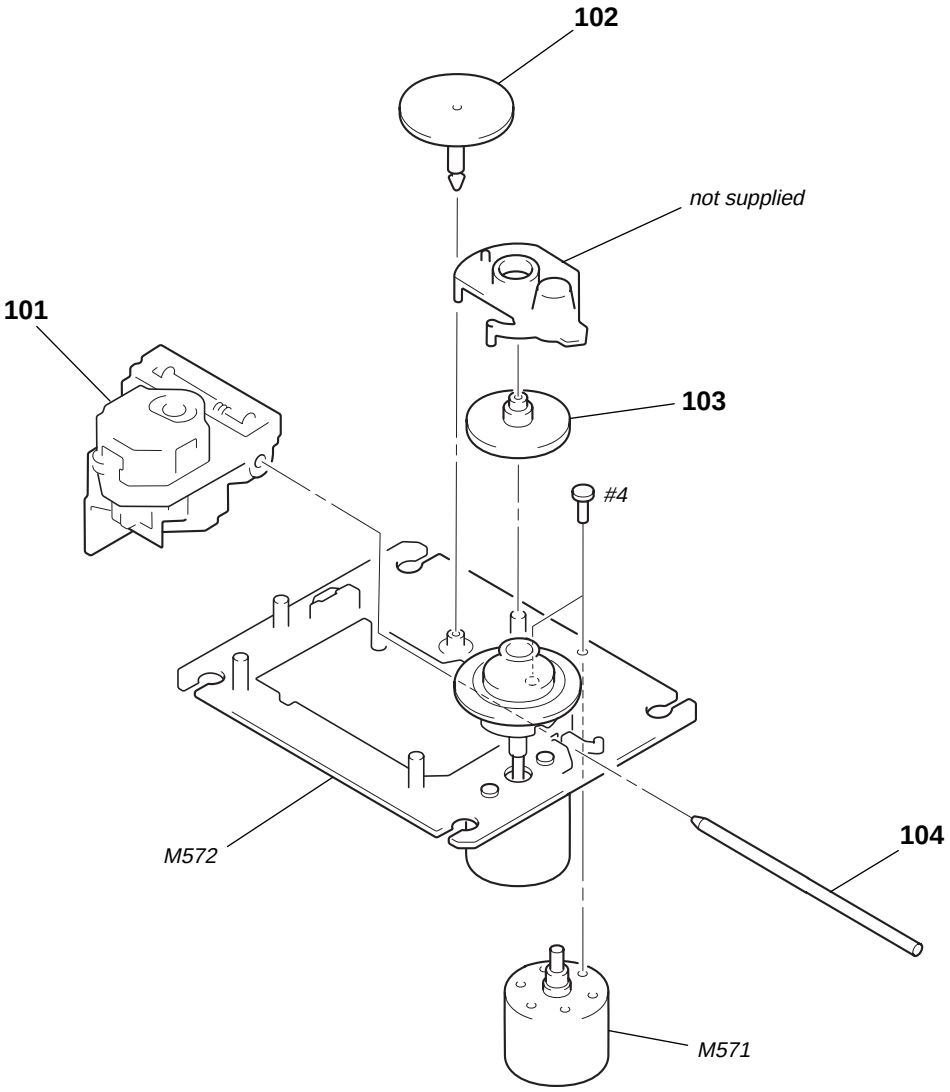


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	3-021-534-01	POINTER	
52	3-021-527-01	CABINET (LOWER) (BLACK) (CD820: US, Canadian)	
52	3-021-527-11	CABINET (LOWER) (WHITE) (CD820: US, Canadian)	
52	3-021-527-21	CABINET (LOWER) (BLACK) (CD820: AEP, IT, SP, AUS)	
52	3-021-527-41	CABINET (LOWER) (BLACK) (CD820L: AEP, UK)	
52	3-021-527-61	CABINET (LOWER) (BLACK) (CD820L: FR)	
52	3-027-579-01	CABINET (LOWER) (SILVER) (CD820: IT)	
52	3-027-579-11	CABINET (LOWER) (SILVER) (CD820L: UK)	
⚠53	1-555-795-00	CORD, POWER (CD820: AEP, IT, SP/CD820L: AEP, FR)	
⚠53	1-696-572-21	CORD, POWER (CD820L: UK)	
⚠53	1-765-458-11	CORD, POWER (CD820: AUS)	
⚠53	1-769-339-22	CORD, POWER (CD820: US, Canadian)	
* 54	1-668-917-11	POWER BOARD (TYPE A)	
* 54	1-668-917-12	POWER BOARD (TYPE B)	
55	1-769-824-11	WIRE (FLAT TYPE) (16 CORE)	
* 56	3-021-530-01	CHASSIS	
* 57	1-668-916-11	SWITCH BOARD (TYPE A)	
* 57	1-668-916-12	SWITCH BOARD (TYPE B)	
58	3-910-116-01	COVER, CD	
59	3-910-095-11	RUBBER, VIBRATION PROOF (GREEN)	
60	3-910-095-01	RUBBER, VIBRATION PROOF (RED)	

Ref. No.	Part No.	Description	Remark
61	3-910-096-01	SCREW (2.6X10), +PWH TAPPING	
* 62	1-668-918-11	MOTOR BOARD (TYPE A)	
* 62	1-668-918-12	MOTOR BOARD (TYPE B)	
* 63	A-3679-973-A	MAIN BOARD, COMPLETE (CD820: US)	
* 63	A-3679-984-A	MAIN BOARD, COMPLETE (CD820: AEP, SP)	
* 63	A-3679-988-A	MAIN BOARD, COMPLETE (CD820: IT)	
* 63	A-3679-989-A	MAIN BOARD, COMPLETE (CD820L: FR)	
* 63	A-3679-990-A	MAIN BOARD, COMPLETE (CD820L: AEP)	
* 63	A-3679-991-A	MAIN BOARD, COMPLETE (CD820L: UK)	
* 63	A-3683-000-A	MAIN BOARD, COMPLETE (CD820: Canadian)	
* 63	A-3683-010-A	MAIN BOARD, COMPLETE (CD820: AUS)	
64	3-928-285-01	KNOB (VOL)	
65	3-928-284-01	KNOB (TUN)	
* 66	1-668-919-11	JACK BOARD (TYPE A) (EXCEPT CD820: US, Canadian)	
* 66	1-668-919-12	JACK BOARD (TYPE A) (EXCEPT CD820: US, Canadian)	
* 67	3-026-561-01	SHEET, INSULATING (EXCEPT CD820: US, Canadian)	
* 68	3-026-565-01	SPACER (B)	
* 69	3-026-566-01	SPACER (C)	
⚠T901	1-423-904-21	TRANSFORMER, POWER (CD820: US, Canadian)	
⚠T901	1-423-905-21	TRANSFORMER, POWER (EXCEPT CD820: US, Canadian)	

(3) OPTICAL PICK-UP SECTION (KSM-213BAN)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠101	8-848-379-31	OPTICAL PICK-UP KSS-213B	
102	2-626-907-01	GEAR (A)	
103	2-627-003-02	GEAR (B) (RP)	
104	2-626-908-01	SHAFT, SLED	
M571	X-2625-769-1	GEAR ASSY (MB), MOTOR (SLED)	
M572	X-2625-770-2	CHASSIS ASSY (MB), (RP) (SPINDLE)	

JACK | KEY | MAIN

SECTION 7
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  AUS : Australian
  FR : French
  IT : Italian
  SP : Singapore
  TYPE A
  TYPE B
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	1-668-919-11	JACK BOARD (TYPE A)	
*	1-668-919-12	JACK BOARD (TYPE B)	
		(EXCEPT CD820: US, Canadian)	
		**********	
		< JACK >	
J301	1-566-891-11	JACK (🎧)	
		< CABLE HOLDER >	
* KH303	1-568-135-21	HOLDER, CABLE 7P	
		< COIL >	
L101	1-410-526-11	INDUCTOR 10uH	
L201	1-410-526-11	INDUCTOR 10uH	
L303	1-410-324-11	INDUCTOR 4.7uH	
**********			
*	1-668-915-11	KEY BOARD (TYPE A)	
*	1-668-915-12	KEY BOARD (TYPE B)	
		**********	
	1-775-826-11	CORD, CONNECTION	
		< SWITCH >	
S401	1-554-937-11	SWITCH, KEY BOARD (WAKE UP/TRACK)	
S402	1-554-937-11	SWITCH, KEY BOARD (ALARM MODE)	
S403	1-554-937-11	SWITCH, KEY BOARD (ALARM B)	
S404	1-554-937-11	SWITCH, KEY BOARD (RADOI/SLEEP)	
S405	1-554-937-11	SWITCH, KEY BOARD (▶▶I +)	
S406	1-554-937-11	SWITCH, KEY BOARD (ALARM A)	
S407	1-554-937-11	SWITCH, KEY BOARD (CD ▶II)	
S408	1-554-937-11	SWITCH, KEY BOARD (I◀◀ -)	
S409	1-554-937-11	SWITCH, KEY BOARD (TRACK/CLOCK)	
S410	1-554-937-11	SWITCH, KEY BOARD (OFF/ALARM RESET)	
S411	1-554-937-11	SWITCH, KEY BOARD (SNOOZE/SLEEP OFF)	
**********			

Ref. No.	Part No.	Description	Remark
*	A-3679-973-A	MAIN BOARD, COMPLETE (CD820: US)	
*	A-3679-984-A	MAIN BOARD, COMPLETE (CD820: AEP, SP)	
*	A-3679-988-A	MAIN BOARD, COMPLETE (CD820: IT)	
*	A-3679-989-A	MAIN BOARD, COMPLETE (CD820L: FR)	
*	A-3679-990-A	MAIN BOARD, COMPLETE (CD820L: AEP)	
*	A-3679-991-A	MAIN BOARD, COMPLETE (CD820L: UK)	
*	A-3683-000-A	MAIN BOARD, COMPLETE (CD820: Canadian)	
*	A-3683-010-A	MAIN BOARD, COMPLETE (CD820: AUS)	
		**********	
*	3-026-566-01	SPACER (C)	
	3-928-285-01	KNOB (VOL)	
		< ANTENNA >	
ANT1	1-501-907-21	ANTENNA, FM WIRE	
		< CAPACITOR >	
C1	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C2	1-163-086-00	CERAMIC CHIP 3PF 50V	
		(CD820/CD820L: AEP, UK)	
C2	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
		(CD820L: FR)	
C3	1-163-100-00	CERAMIC CHIP 20PF 5% 50V	
		(EXCEPT CD820: IT/CD820L)	
C3	1-163-102-00	CERAMIC CHIP 24PF 5% 50V	
		(CD820: IT)	
C4	1-163-102-00	CERAMIC CHIP 24PF 5% 50V	
		(EXCEPT CD820: IT/CD820L)	
C4	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	
		(CD820: IT)	
C5	1-163-086-00	CERAMIC CHIP 3PF 50V	
		(CD820/CD820L: AEP)	
C5	1-163-083-00	CERAMIC CHIP 1PF 50V	
		(CD820L: UK)	
C5	1-163-122-00	CERAMIC CHIP 160PF 5% 50V	
		(CD820L: FR)	
C6	1-163-102-00	CERAMIC CHIP 24PF 5% 50V	
		(CD820L: AEP, UK)	
C7	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
		(CD820: US/CD820L: UK)	
C7	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
		(CD820L: AEP)	

Ref. No.	Part No.	Description			Remark
C8	1-163-122-00	CERAMIC CHIP	160PF	5%	50V (CD820L: AEP)
C8	1-163-121-00	CERAMIC CHIP	150PF	5%	50V (CD820L: UK)
C10	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C11	1-126-967-11	ELECT	47uF	20%	10V
C12	1-163-086-00	CERAMIC CHIP	3PF		50V
C13	1-126-961-11	ELECT	2.2uF	20%	50V
C14	1-104-665-11	ELECT	100uF	20%	10V
C15	1-126-959-11	ELECT	0.47uF	20%	50V
C16	1-126-963-11	ELECT	4.7uF	20%	50V
C17	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C18	1-126-963-11	ELECT	4.7uF	20%	50V
C19	1-126-960-11	ELECT	1uF	20%	50V
C20	1-126-967-11	ELECT	47uF	20%	10V
C21	1-126-967-11	ELECT	47uF	20%	10V
C22	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C23	1-126-960-11	ELECT	1uF	20%	50V
C25	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (CD820: US, Canadian)
C26	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (CD820: US)
C101	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C102	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C103	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C104	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C120	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C121	1-126-963-11	ELECT	4.7uF	20%	50V
C122	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C124	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C150	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C151	1-126-967-11	ELECT	47uF	20%	10V
C152	1-104-665-11	ELECT	100uF	20%	10V
C153	1-126-916-11	ELECT	1000uF	20%	6.3V
C154	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C155	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C201	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C202	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C203	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C204	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C220	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C221	1-126-963-11	ELECT	4.7uF	20%	50V
C222	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C224	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C250	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C251	1-126-967-11	ELECT	47uF	20%	10V
C252	1-104-665-11	ELECT	100uF	20%	10V
C253	1-126-916-11	ELECT	1000uF	20%	6.3V
C254	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C255	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C301	1-126-934-11	ELECT	220uF	20%	10V
C302	1-126-934-11	ELECT	220uF	20%	10V
C303	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C305	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (CD820: US, Canadian)
C320	1-126-963-11	ELECT	4.7uF	20%	50V
C321	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remark
C331	1-126-963-11	ELECT	4.7uF	20%	50V (EXCEPT CD820: US, Canadian)
C350	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C351	1-126-933-11	ELECT	100uF	20%	16V
C352	1-126-964-11	ELECT	10uF	20%	50V
C353	1-126-967-11	ELECT	47uF	20%	16V
C354	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C355	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C356	1-164-005-11	CERAMIC CHIP	0.47uF		25V (CD820: US, Canadian)
C358	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C401	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C402	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C403	1-126-934-11	ELECT	220uF	20%	10V
C404	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C405	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C407	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C408	1-126-916-11	ELECT	1000uF	20%	6.3V
C409	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C411	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C412	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C413	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C414	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C415	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C416	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C417	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C418	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C419	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C420	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C421	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C422	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C423	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C424	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C425	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C426	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C501	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C502	1-126-967-11	ELECT	47uF	20%	10V
C503	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C504	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C505	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C506	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C507	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C508	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C509	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C510	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C511	1-163-085-00	CERAMIC CHIP	2PF		50V
C512	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C513	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C514	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C515	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C516	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C517	1-124-584-00	ELECT	100uF	20%	10V
C518	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C519	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C520	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C521	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C522	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C523	1-126-963-11	ELECT	4.7uF	20%	50V

MAIN

Ref. No.	Part No.	Description			Remark
C524	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C525	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C526	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C527	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C528	1-126-963-11	ELECT	4.7uF	20%	50V
C529	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C530	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C531	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C532	1-164-005-11	CERAMIC CHIP	0.47uF		25V
					(CD820: US, Canadian)
C532	1-163-031-11	CERAMIC CHIP	0.01uF		50V
					(EXCEPT CD820: US, Canadian)
C533	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C534	1-104-665-11	ELECT	100uF	20%	10V
C537	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C539	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C540	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C541	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C542	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C543	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C544	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C545	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C546	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C547	1-104-665-11	ELECT	100uF	20%	10V
C548	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C549	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C550	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
					(CD820: US, Canadian)
C550	1-163-038-00	CERAMIC CHIP	0.1uF		25V
					(EXCEPT CD820: US, Canadian)
C551	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C552	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C553	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C554	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
					(CD820: US, Canadian)
C554	1-163-038-00	CERAMIC CHIP	0.1uF		25V
					(EXCEPT CD820: US, Canadian)
C555	1-104-665-11	ELECT	100uF	20%	10V
C556	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C557	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C558	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C559	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C560	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C561	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C562	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C563	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C564	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C565	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C566	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C567	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C568	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
					(CD820: US, Canadian)
C570	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C571	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C572	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C573	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C574	1-104-665-11	ELECT	100uF	20%	10V
C575	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C580	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C583	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C584	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C901	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C902	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C903	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C904	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C905	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C906	1-126-937-11	ELECT	4700uF	20%	16V
C907	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C908	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C910	1-104-665-11	ELECT	100uF	20%	10V
C911	1-104-665-11	ELECT	100uF	20%	10V
C912	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C916	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C917	1-104-665-11	ELECT	100uF	20%	10V
C919	1-104-665-11	ELECT	100uF	20%	10V
C920	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C921	1-163-021-11	CERAMIC CHIP	0.01uF		50V
C924	1-163-038-00	CERAMIC CHIP	0.1uF		25V
					(CD820: US, Canadian)
		< FILTER >			
CF1	1-577-072-11	FILTER, CERAMIC (CD820)			
CF1	1-578-677-11	FILTER, CRYSTAL (CD820L)			
CF2	1-760-238-11	FILTER, CERAMIC			
CF3	1-760-238-11	FILTER, CERAMIC			
		< CONNECTOR >			
* CNP301	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
					(CD820: US, Canadian)
* CNP302	1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
					(EXCEPT CD820: US, Canadian)
* CNP303	1-564-709-11	PIN, CONNECTOR (SMALL TYPE) 7P			
					(EXCEPT CD820: US, Canadian)
CNP401	1-774-296-11	SOCKET, CONNECTOR 12P			
CNP501	1-774-465-11	CONNECTOR, FFC/FPC 16P			
* CNP502	1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
* CNP901	1-568-268-11	SOCKET, CONNECTOR 2P			
		< TRIMMER >			
CT5	1-141-443-11	CAP, CERAMIC TRIMMER 30PF			
					(CD820L: AEP, UK)
CT6	1-141-443-11	CAP, CERAMIC TRIMMER 30PF			
					(CD820L: AEP, UK)
		< VARIABLE CAPACITOR >			
CT1-4	1-141-529-11	CAP, VAR (TUNING)			
CV1-4	1-141-529-11	CAP, VAR (TUNING)			
		< DIODE >			
D101	8-719-991-33	DIODE 1SS133T-77			
D120	8-719-991-33	DIODE 1SS133T-77			
D201	8-719-991-33	DIODE 1SS133T-77			
D220	8-719-991-33	DIODE 1SS133T-77			
D320	8-719-991-33	DIODE 1SS133T-77			
D401	8-719-991-33	DIODE 1SS133T-77			
D501	8-719-991-33	DIODE 1SS133T-77			
D901	8-719-031-85	DIODE 1N4002L			

Ref. No.	Part No.	Description	Remark
D902	8-719-031-85	DIODE 1N4002L	
D903	8-719-031-85	DIODE 1N4002L	
D904	8-719-031-85	DIODE 1N4002L	
D905	8-719-991-33	DIODE 1SS133T-77	
D906	8-719-991-33	DIODE 1SS133T-77	
D907	8-719-991-33	DIODE 1SS133T-77	
D908	8-719-047-42	LED SLZ-235C-16-T1 (LCD BACK LIGHT)	
D909	8-719-047-42	LED SLZ-235C-16-T1 (LCD BACK LIGHT)	
D910	8-719-109-97	DIODE RD6.8ES-B2	
D911	8-719-991-33	DIODE 1SS133T-77	
D912	8-719-991-33	DIODE 1SS133T-77	
		< IC >	
IC1	8-752-062-48	IC CXA1238M-T6	
IC301	8-759-909-71	IC BA4558F	
IC302	8-759-060-21	IC LA4598	
IC401	8-759-368-98	IC uPD75304BGF-054-3B9	
IC402	8-759-165-89	IC PST600L-T	
IC501	8-752-074-34	IC CXA1782BQ	
IC502	8-752-373-06	IC CXD2508AQ	
IC503	8-759-336-75	IC BA5930FP	
		< JUMPER RESISTOR >	
JC1	1-216-295-00	SHORT 0	
JC2	1-216-295-00	SHORT 0	
		< COIL >	
L1	1-402-405-11	ANTENNA, FERRITE-ROD (MW) (CD820)	
L1	1-402-276-11	ANTENNA, FERRITE-ROD (MW/LW)	(CD820L: AEP, UK)
L1	1-402-404-11	ANTENNA, FERRITE-ROD (LW) (CD820L: FR)	
L2	1-411-924-11	COIL, AIR-CORE	
L3	1-428-222-11	COIL, AIR-CORE (EXCEPT CD820: IT /CD820L)	
L3	1-406-425-11	COIL (CD820: IT)	
L4	1-406-028-00	COIL, OSC (MW)	
L5	1-412-955-11	INDUCTOR 22uH (CD820: US)	
L5	1-216-296-00	SHORT 0 (EXCEPT CD820: US)	
L301	1-410-396-41	FERRITE 0.45uH (CD820: US, Canadian)	
L301	1-410-324-11	INDUCTOR 4.7uH	(EXCEPT CD820: US, Canadian)
L401	1-410-526-11	INDUCTOR 10uH	
L501	1-410-324-11	INDUCTOR 4.7uH	
L540	1-410-324-11	INDUCTOR 4.7uH	
L541	1-410-396-41	FERRITE 0.45uH (CD820: US, Canadian)	
L541	1-410-526-11	INDUCTOR 10uH	(EXCEPT CD820: US, Canadian)
L542	1-410-396-41	FERRITE 0.45uH (CD820: US, Canadian)	
L542	1-410-526-11	INDUCTOR 10uH	(EXCEPT CD820: US, Canadian)
L543	1-410-396-41	FERRITE 0.45uH (CD820: US, Canadian)	
L543	1-410-526-11	INDUCTOR 10uH	(EXCEPT CD820: US, Canadian)
		< LIQUID CRYSTAL DISPLAY >	
LCD901	1-803-154-11	DISPLAY PANEL, LIQUID CRYSTAL	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q1	8-729-119-78	TRANSISTOR 2SC403SP-51	(CD820L: AEP, UK)
Q2	8-729-119-78	TRANSISTOR 2SC403SP-51	(CD820L: AEP, UK)
Q120	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q130	8-729-029-94	TRANSISTOR DTC143TSA	(EXCEPT CD820: US, Canadian)
Q220	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q230	8-729-029-94	TRANSISTOR DTC143TSA	(EXCEPT CD820: US, Canadian)
Q320	8-729-029-21	TRANSISTOR DTA114ESA-TP	
Q321	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q330	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q501	8-729-801-84	TRANSISTOR 2SB1013-4	
Q502	8-729-119-78	TRANSISTOR 2SC403SP-51	
Q901	8-729-021-82	TRANSISTOR 2SD2396K	
Q902	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q904	8-729-021-82	TRANSISTOR 2SD2396K	
Q905	8-729-801-84	TRANSISTOR 2SB1013-4	
		< RESISTOR >	
R2	1-216-059-00	RES, CHIP 2.7K 5% 1/10W	(CD820: US)
R2	1-216-065-00	RES, CHIP 4.7K 5% 1/10W	(EXCEPT CD820: US)
R3	1-216-073-00	RES, CHIP 10K 5% 1/10W	(CD820L: AEP, UK)
R4	1-216-097-00	RES, CHIP 100K 5% 1/10W	(CD820L: AEP, UK)
R5	1-216-089-00	RES, CHIP 47K 5% 1/10W	(CD820L: AEP, UK)
R6	1-216-097-00	RES, CHIP 100K 5% 1/10W	(CD820L: AEP, UK)
R11	1-216-097-00	RES, CHIP 100K 5% 1/10W	
R12	1-216-073-00	RES, CHIP 10K 5% 1/10W	
R13	1-216-105-00	RES, CHIP 220K 5% 1/10W	
R14	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R15	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R16	1-216-073-00	RES, CHIP 10K 5% 1/10W	
R17	1-216-105-00	RES, CHIP 220K 5% 1/10W	
R18	1-216-025-00	RES, CHIP 100 5% 1/10W	(CD820: US)
R18	1-216-295-00	SHORT 0 (EXCEPT CD820: US)	
R101	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R102	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R103	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R104	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R105	1-216-089-00	RES, CHIP 47K 5% 1/10W	
R106	1-216-089-00	RES, CHIP 47K 5% 1/10W	
R107	1-216-073-00	RES, CHIP 10K 5% 1/10W	
R108	1-216-073-00	RES, CHIP 10K 5% 1/10W	
R109	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R120	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R121	1-216-073-00	RES, CHIP 10K 5% 1/10W	
R122	1-216-065-00	RES, CHIP 4.7K 5% 1/10W	
R123	1-216-097-00	RES, CHIP 100K 5% 1/10W	
R125	1-216-049-11	RES, CHIP 1K 5% 1/10W	
R150	1-216-073-00	RES, CHIP 10K 5% 1/10W	
R151	1-216-065-00	RES, CHIP 4.7K 5% 1/10W	

MAIN

Ref. No.	Part No.	Description			Remark
R152	1-216-081-00	METAL CHIP	22K	5%	1/10W
R153	1-216-009-00	METAL CHIP	22	5%	1/10W
R154	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R155	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R156	1-216-025-00	RES, CHIP	100	5%	1/10W
			(EXCEPT CD820: US, Canadian)		
R201	1-216-081-00	METAL CHIP	22K	5%	1/10W
R202	1-216-081-00	METAL CHIP	22K	5%	1/10W
R203	1-216-081-00	METAL CHIP	22K	5%	1/10W
R204	1-216-081-00	METAL CHIP	22K	5%	1/10W
R205	1-216-089-00	RES, CHIP	47K	5%	1/10W
R206	1-216-089-00	RES, CHIP	47K	5%	1/10W
R207	1-216-073-00	RES, CHIP	10K	5%	1/10W
R208	1-216-073-00	RES, CHIP	10K	5%	1/10W
R209	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R220	1-216-081-00	METAL CHIP	22K	5%	1/10W
R221	1-216-073-00	RES, CHIP	10K	5%	1/10W
R222	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R223	1-216-097-00	RES, CHIP	100K	5%	1/10W
R225	1-216-049-11	RES, CHIP	1K	5%	1/10W
R250	1-216-073-00	RES, CHIP	10K	5%	1/10W
R251	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R252	1-216-081-00	METAL CHIP	22K	5%	1/10W
R253	1-216-009-00	METAL CHIP	22	5%	1/10W
R254	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R255	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R256	1-216-025-00	RES, CHIP	100	5%	1/10W
			(EXCEPT CD820: US, Canadian)		
R301	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R303	1-216-073-00	RES, CHIP	10K	5%	1/10W
R320	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R321	1-216-097-00	RES, CHIP	100K	5%	1/10W
R322	1-216-073-00	RES, CHIP	10K	5%	1/10W
R331	1-216-049-11	RES, CHIP	1K	5%	1/10W
			(EXCEPT CD820: US, Canadian)		
R332	1-216-097-00	RES, CHIP	100K	5%	1/10W
			(EXCEPT CD820: US, Canadian)		
R336	1-216-089-00	RES, CHIP	47K	5%	1/10W
R402	1-216-049-11	RES, CHIP	1K	5%	1/10W
R403	1-216-049-11	RES, CHIP	1K	5%	1/10W
R404	1-216-049-11	RES, CHIP	1K	5%	1/10W
R405	1-216-049-11	RES, CHIP	1K	5%	1/10W
R406	1-216-049-11	RES, CHIP	1K	5%	1/10W
R407	1-216-049-11	RES, CHIP	1K	5%	1/10W
R408	1-216-049-11	RES, CHIP	1K	5%	1/10W
R409	1-216-049-11	RES, CHIP	1K	5%	1/10W
R410	1-216-049-11	RES, CHIP	1K	5%	1/10W
R411	1-216-049-11	RES, CHIP	1K	5%	1/10W
R412	1-216-049-11	RES, CHIP	1K	5%	1/10W
R413	1-216-049-11	RES, CHIP	1K	5%	1/10W
R414	1-216-049-11	RES, CHIP	1K	5%	1/10W
R415	1-216-049-11	RES, CHIP	1K	5%	1/10W
R416	1-216-049-11	RES, CHIP	1K	5%	1/10W
R417	1-216-049-11	RES, CHIP	1K	5%	1/10W
R418	1-216-049-11	RES, CHIP	1K	5%	1/10W
R419	1-216-049-11	RES, CHIP	1K	5%	1/10W
R420	1-216-049-11	RES, CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R423	1-216-073-00	RES, CHIP	10K	5%	1/10W
		(CD820: AEP, IT, SP/CD820L: AEP, FR)			
R427	1-216-073-00	RES, CHIP	10K	5%	1/10W
R428	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R429	1-216-097-00	RES, CHIP	100K	5%	1/10W
R430	1-216-073-00	RES, CHIP	10K	5%	1/10W
R431	1-216-121-00	RES, CHIP	1M	5%	1/10W
R432	1-216-073-00	RES, CHIP	10K	5%	1/10W
R433	1-216-097-00	RES, CHIP	100K	5%	1/10W
R434	1-216-097-00	RES, CHIP	100K	5%	1/10W
R435	1-216-097-00	RES, CHIP	100K	5%	1/10W
R436	1-216-097-00	RES, CHIP	100K	5%	1/10W
R437	1-216-097-00	RES, CHIP	100K	5%	1/10W
R438	1-216-097-00	RES, CHIP	100K	5%	1/10W
R439	1-216-097-00	RES, CHIP	100K	5%	1/10W
R440	1-216-097-00	RES, CHIP	100K	5%	1/10W
R441	1-216-097-00	RES, CHIP	100K	5%	1/10W
R442	1-216-097-00	RES, CHIP	100K	5%	1/10W
R443	1-216-097-00	RES, CHIP	100K	5%	1/10W
R444	1-216-097-00	RES, CHIP	100K	5%	1/10W
R445	1-216-097-00	RES, CHIP	100K	5%	1/10W
R446	1-216-073-00	RES, CHIP	10K	5%	1/10W
R447	1-216-073-00	RES, CHIP	10K	5%	1/10W
R448	1-216-073-00	RES, CHIP	10K	5%	1/10W
R449	1-216-073-00	RES, CHIP	10K	5%	1/10W
R450	1-216-073-00	RES, CHIP	10K	5%	1/10W
R451	1-216-073-00	RES, CHIP	10K	5%	1/10W
R452	1-216-073-00	RES, CHIP	10K	5%	1/10W
R453	1-216-073-00	RES, CHIP	10K	5%	1/10W
R454	1-216-073-00	RES, CHIP	10K	5%	1/10W
R455	1-216-073-00	RES, CHIP	10K	5%	1/10W
R456	1-216-073-00	RES, CHIP	10K	5%	1/10W
R457	1-216-097-00	RES, CHIP	100K	5%	1/10W
R458	1-216-073-00	RES, CHIP	10K	5%	1/10W
R501	1-216-095-00	METAL CHIP	82K	5%	1/10W
R502	1-216-089-00	RES, CHIP	47K	5%	1/10W
R503	1-216-089-00	RES, CHIP	47K	5%	1/10W
R504	1-216-089-00	RES, CHIP	47K	5%	1/10W
R505	1-216-089-00	RES, CHIP	47K	5%	1/10W
R506	1-216-097-00	RES, CHIP	100K	5%	1/10W
R507	1-216-009-00	METAL CHIP	22	5%	1/10W
R508	1-216-097-00	RES, CHIP	100K	5%	1/10W
R509	1-216-073-00	RES, CHIP	10K	5%	1/10W
R510	1-216-081-00	METAL CHIP	22K	5%	1/10W
R511	1-216-081-00	METAL CHIP	22K	5%	1/10W
R512	1-216-077-00	METAL CHIP	15K	5%	1/10W
R513	1-216-119-00	METAL CHIP	820K	5%	1/10W
R515	1-216-105-00	RES, CHIP	220K	5%	1/10W
R516	1-216-101-00	METAL CHIP	150K	5%	1/10W
R518	1-216-097-00	RES, CHIP	100K	5%	1/10W
R520	1-216-109-00	METAL CHIP	330K	5%	1/10W
R521	1-216-113-00	METAL CHIP	470K	5%	1/10W
R522	1-216-073-00	RES, CHIP	10K	5%	1/10W
R523	1-216-077-00	METAL CHIP	15K	5%	1/10W
R524	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R525	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R526	1-216-073-00	RES, CHIP	10K	5%	1/10W
R527	1-216-073-00	RES, CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R528	1-216-113-00	METAL CHIP	470K	5%	1/10W
R529	1-216-097-00	RES, CHIP	100K	5%	1/10W
R530	1-216-113-00	METAL CHIP	470K	5%	1/10W
R531	1-216-095-00	METAL CHIP	82K	5%	1/10W
R533	1-216-097-00	RES, CHIP	100K	5%	1/10W
R534	1-216-089-00	RES, CHIP	47K	5%	1/10W
R535	1-216-073-00	RES, CHIP	10K	5%	1/10W
R536	1-216-093-00	METAL CHIP	68K	5%	1/10W
R537	1-216-101-00	METAL CHIP	150K	5%	1/10W
R540	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R541	1-216-049-11	RES, CHIP	1K	5%	1/10W
R542	1-216-073-00	RES, CHIP	10K	5%	1/10W
R543	1-216-121-00	RES, CHIP	1M	5%	1/10W
R544	1-216-073-00	RES, CHIP	10K	5%	1/10W
R545	1-216-105-00	RES, CHIP	220K	5%	1/10W
R546	1-216-073-00	RES, CHIP	10K	5%	1/10W
R547	1-216-097-00	RES, CHIP	100K	5%	1/10W
R548	1-216-073-00	RES, CHIP	10K	5%	1/10W
R549	1-216-073-00	RES, CHIP	10K	5%	1/10W
R550	1-216-097-00	RES, CHIP	100K	5%	1/10W
R551	1-216-049-11	RES, CHIP	1K	5%	1/10W
R552	1-216-049-11	RES, CHIP	1K	5%	1/10W
R553	1-216-049-11	RES, CHIP	1K	5%	1/10W
R554	1-216-049-11	RES, CHIP	1K	5%	1/10W
R555	1-216-049-11	RES, CHIP	1K	5%	1/10W
R556	1-216-049-11	RES, CHIP	1K	5%	1/10W
R557	1-216-049-11	RES, CHIP	1K	5%	1/10W
R558	1-216-049-11	RES, CHIP	1K	5%	1/10W
R559	1-216-049-11	RES, CHIP	1K	5%	1/10W
R560	1-216-049-11	RES, CHIP	1K	5%	1/10W
R561	1-216-073-00	RES, CHIP	10K	5%	1/10W
R570	1-216-073-00	RES, CHIP	10K	5%	1/10W
R571	1-216-081-00	METAL CHIP	22K	5%	1/10W
R572	1-216-081-00	METAL CHIP	22K	5%	1/10W
R573	1-216-089-00	RES, CHIP	47K	5%	1/10W
R574	1-216-089-00	RES, CHIP	47K	5%	1/10W
R575	1-216-073-00	RES, CHIP	10K	5%	1/10W
R576	1-216-049-11	RES, CHIP	1K	5%	1/10W
R577	1-216-113-00	METAL CHIP	470K	5%	1/10W
R901	1-216-097-00	RES, CHIP	100K	5%	1/10W
⚠R902	1-219-149-11	FUSIBLE	1	5%	1/4W F (EXCEPT CD820: US)
⚠R903	1-219-149-11	FUSIBLE	1	5%	1/4W F (EXCEPT CD820: US)
R905	1-216-049-11	RES, CHIP	1K	5%	1/10W
R906	1-216-033-00	METAL CHIP	220	5%	1/10W
R907	1-216-033-00	METAL CHIP	220	5%	1/10W
R908	1-216-089-00	RES, CHIP	47K	5%	1/10W
R909	1-216-049-11	RES, CHIP	1K	5%	1/10W
R910	1-216-033-00	METAL CHIP	220	5%	1/10W
R911	1-216-049-11	RES, CHIP	1K	5%	1/10W
R912	1-216-089-00	RES, CHIP	47K	5%	1/10W

< VARIABLE RESISTOR >

RV1	1-241-765-11	RES, ADJ, CARBON 22K	
RV301	1-223-966-11	RES, VAR, CARBON 50K (VOLUME)	
RV501	1-230-497-11	RES, ADJ, CARBON 22K	
RV502	1-230-497-11	RES, ADJ, CARBON 22K	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S1	1-692-181-21	SWITCH, SLIDE (BAND) (CD820/CD820L: FR)	
S1	1-572-633-11	SWITCH, SLIDE (BAND) (CD820L: AEP, UK)	
		< TRANSFORMER >	
T1	1-404-790-11	TRANSFORMER, IF (CD820)	
T1	1-404-902-11	TRANSFORMER, IF (CD820L: AEP, UK)	
T1	1-404-902-21	TRANSFORMER, IF (CD820L: FR)	
		< VIBRATOR >	
X401	1-760-641-21	VIBRATOR, CERAMIC (4.19MHz)	
X402	1-567-098-41	VIBRATOR, CRYSTAL (32kHz)	
X501	1-760-793-11	VIBRATOR, CERAMIC (16.933MHz)	
**********			
*	1-668-918-11	MOTOR BOARD (TYPE A)	
*	1-668-918-12	MOTOR BOARD (TYPE B)	
		**********	
		< SWITCH >	
S570	1-571-936-11	SWITCH, LEAF (LIMIT)	
**********			
*	1-668-917-11	POWER BOARD (TYPE A)	
*	1-668-917-12	POWER BOARD (TYPE B)	
		**********	
⚠	1-769-339-22	CORD, POWER (CD820: US, Canadian)	
⚠	1-555-795-00	CORD, POWER (CD820: AEP, IT, SP/CD820L: AEP, FR)	
⚠	1-765-458-11	CORD, POWER (CD820: AUS)	
⚠	1-555-795-00	CORD, POWER (CD820: IT, SP/CD820L: AEP, FR)	
⚠	1-696-572-21	CORD, POWER (CD820L: UK)	
⚠	1-769-578-11	CORD, POWER (CD820L: UK)	
		< CABLE HOLDER >	
* KH901	1-573-287-11	HOLDER, CABLE 2P	
		< LINE FILTER >	
⚠L901	1-424-150-11	TRANSFORMER, LINE FILTER	
		< TRANSFORMER >	
⚠T901	1-423-904-21	TRANSFORMER, POWER (CD820: US, Canadian)	
⚠T901	1-423-905-21	TRANSFORMER, POWER (EXCEPT CD820: US, Canadian)	
		< TERMINAL >	
* TM1	1-535-771-11	TERMINAL (EXCEPT CD820: US, Canadian)	
* TM2	1-535-771-11	TERMINAL (EXCEPT CD820: US, Canadian)	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SWITCH

Ref. No.	Part No.	Description	Remark
*	1-668-916-11	SWITCH BOARD (TYPE A)	
*	1-668-916-12	SWITCH BOARD (TYPE B)	
		**********	
		< SWITCH >	
S420	1-692-080-11	SWITCH, PUSH (1 KEY) (OPEN/CLOSE)	
		MISCELLANEOUS	
		**********	
4	1-452-732-11	MAGNET	
12	1-775-826-11	CORD, CONNECTION	
⚠53	1-555-795-00	CORD, POWER (CD820: AEP, IT, SP/CD820L: AEP, FR)	
⚠53	1-696-572-21	CORD, POWER (CD820L: UK)	
⚠53	1-765-458-11	CORD, POWER (CD820: AUS)	
⚠53	1-769-339-22	CORD, POWER (CD820: US, Canadian)	
55	1-769-824-11	WIRE (FLAT TYPE) (16 CORE)	
⚠101	8-848-379-31	OPTICAL PICK-UP KSS-213B	
M571	X-2625-769-1	GEAR ASSY (MB), MOTOR (SLED)	
M572	X-2625-770-2	CHASSIS ASSY (MB), (RP) (SPINDLE)	
SP101	1-504-460-11	SPEAKER (7.7CM) (L-CH)	
SP201	1-504-460-11	SPEAKER (7.7CM) (R-CH)	
⚠T901	1-423-904-21	TRANSFORMER, POWER (CD820: US, Canadian)	
⚠T901	1-423-905-21	TRANSFORMER, POWER (EXCEPT CD820: US, Canadian)	
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-649-79	SCREW +P 3X14 TYPE2 NON-SLIT	
#2	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	7-685-547-19	SCREW +BTP 3X10 TYPE2 N-S	
#4	7-621-255-15	SCREW +P 2X3	
		ACCESSORIES & PACKING MATERIALS	
		**********	
*	3-704-286-01	BAG (STANDARD), PROTECTION	
	3-862-235-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, DUTCH) (CD820: AEP, IT, SP, AUS/CD820L)	
	3-862-235-21	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (CD820: US, Canadian)	
	3-862-235-31	MANUAL, INSTRUCTION (SPANISH, SWEDISH, ITALIAN, PORTUGUESE) (CD820: AEP, IT/CD820L: FR)	

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